

FLIGHT

The
**AIRCRAFT
ENGINEER
&
AIRSHIPS**

First Aero Weekly in the World

Founder and Editor: **STANLEY SPOONER**

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 834. (No. 51, Vol. XVI.)

DECEMBER 18, 1924

Weekly, Price 6d.
Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* European subscriptions must be remitted in British currency

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

1924	
Dec. 5-21	Paris Aero Show.
Dec. 12	Commander J. C. Hunsaker (C.C.), U.S.N., Assistant Naval Attaché to the American Embassy, London: "Notes on Seaplane Design," before I.Ae.E., Kingsway Hall.
Dec. 18	Mr. A. R. Watson Watt (Superintendent, Radio Research Board Station): "Recent Studies on Radiotelegraphic Atmospherics," before R.Ae.S.
1925	
Jan. 9	Mr. R. J. Parrott, Hons. Member: "The History and Evolution of the Avro Training Machine," before I.Ae.E.
Jan. 23	Lieut. N. A. Olechnovitch, Member: "A Few Experiments with Shock-Absorbing Hulls for Flying Boats," before I.Ae.E.
Feb. 5	Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., A.F.R.Ae.S.: "The Operation of Flying Boats in the Mediterranean," before R.Ae.S.
Feb. 6	Professor E. G. Coker, D.Sc., F.R.S.: "Photo-Elastic Methods of Measuring Stress," before I.Ae.E.
Feb. 19	Major R. V. Southwell, A.F.R.Ae.S. (Superintendent, Aerodynamics Department, National Physical Laboratory): (Title to be announced later), before R.Ae.S.

EDITORIAL COMMENT.



It cannot truthfully be said that air racing in Great Britain was at all satisfactory in 1924. In fact, one might almost be justified in considering that from this particular point of view, at any rate, 1924 has been the worst year we have had since 1912 or so, barring, of course, the period 1914-18, when quite a different and very strenuous international race was being held. The reasons for the decay of air racing are many and various. Lack of machines and the unwillingness, or perhaps it would be more to the point to say inability, of manufacturers to build special machines for racing have been mainly responsible. The Air Ministry has refused to "lend" machines for certain events that had been planned, and as privately-owned aircraft of the type for which the races were intended were mostly non-existent, the events had to be called off or so changed in character as to present little that was of interest. Nor, we fear, have those responsible for organising air races in Great Britain always planned their regulations in such a way as to make for public interest. To take an example, the race for the King's Cup, originally planned as a seaplane race around Britain or along the south coast, had to be changed into a handicap race for a heterogeneous collection of machines, mostly aeroplanes but with a sprinkling of seaplanes. For this, of course, the Royal Aero Club is not to be blamed. But when it came to drafting the rules it was decided to start the race from Martlesham and finish it at Lee-on-Solent, machines leaving the starting point at minute intervals and arriving at the finishing point all anyhow, so that it was a physical impossibility for anyone to form any idea of who was winning or how the race was progressing, the result not being known until after the handicap allowances, etc., had been worked out after the finishes. How the general public could be expected to take keen interest in such a race is not clear to ordinary people. The result very naturally was that the man in the street totally failed to grasp the strenuous nature of the race, which was really one of the most searching tests we have ever had in this country.

Fortunately, there are signs that 1925 will see a revival of air racing, and it is to be hoped that those responsible for drawing up the regulations will keep in mind that one of the essential features is to get the general public interested and to plan the rules in such a way that it will not require slide rules and logarithmic tables plus a certain gift for "second sight" to be able to follow the races. The Official Notices of the Royal Aero Club are of more than ordinary interest this week on account of the references to some of the bigger air races and competitions planned for 1925. The King's Cup Race, for instance (which will take place in July), is to be a two-days' affair, and competitors will be required to cover no less than 1,000 miles each day, returning to the starting point on both days. The race is to be from London to Scotland and back, so that it will be realised that if this year's King's Cup Race was a strenuous test, next year's will be even more so. Two thousand miles in something like 24 hours' flying time (assuming that no flying will be permitted between sunset and sunrise) will be a severe test of engines and pilots, and, although the plea might be advanced that the test is too severe, there is the advantage that any team which succeeds in getting through will have accomplished something really worth while, and which will be the finest possible advertisement for machine and engine.

Certain changes are to be made in connection with the Aerial Derby, which is to be held on August Bank Holiday. As hitherto, the race will be an international one, but it will be a scratch speed race of 200 miles for machines having a top speed of at least 150 m.p.h. The handicap race for all sorts of machines, which has hitherto always been flown in conjunction with the Aerial Derby itself, is to be abandoned, and its place is to be taken by an international handicap race. Thus the Aerial Derby will be flown by fast machines only, and if a sufficient number of entries can be secured this speed race, the only one of any importance to be held in Great Britain, should gain very considerably in interest by the proposed arrangements. Unless, however, substantial prizes can be offered there does not appear to be any likelihood of attracting competitors from abroad, and thus the international character of the Aerial Derby would be lost. There is here an excellent opportunity for some wealthy supporter of aviation to come forward with a really attractive prize, and thus do a tremendous amount of good in reviving the interest in high-speed machines. The design, construction and testing of such machines cannot but have a very beneficial effect on the production of fast service machines, and it might therefore, have been thought in the immediate interest of the Air Ministry to offer prizes. Presumably the offer to purchase the winning machine still holds good, but this in itself is not sufficient, and will in no way help to attract foreign competitors, without whom the Aerial Derby cannot hope to become the great British speed event which it should be.

Apart from any competition for light 'planes which the Air Ministry, in conjunction with the Royal Aero Club, may decide to hold, the R.Ae.C. has

decided to hold, during the season, sprint races for light 'planes. These should assist very materially in maintaining the interest in this class of machine, and if a sort of "circus" could be got together, holding sprint races one week-end in London, another in the Midlands, another in the North, and so forth, the general public not only in the London district but all over the country would have an opportunity of becoming familiar with the flying qualities of light 'planes. Remembering how popular were the very modest week-end race meetings at Hendon in the old days, it does appear that regular races for light 'planes would be equally appreciated at the present time, and they could certainly be held at relatively trifling cost.

It is also good news to learn that the Royal Aero Club has decided to issue certificates of performance for light 'planes. Exactly what constitutes a light 'plane has not yet been officially decided, but doubtless a ruling on the subject will be given before the commencement of next season's flying.

* * *

R.Ae.C.
L.A.S.

On p. 793 of this week's issue of FLIGHT will be found a brief outline of the Royal Aero Club's scheme for the formation of a Light Aeroplane Section of the Royal Aero Club for the London district. It will be seen that the charges which it is intended to make are extremely moderate: 3 guineas per annum for full membership (*i.e.*, flying members), and 1 guinea per annum for non-flying members. Both subscriptions are so low as to be within the means of almost everyone, and there is little doubt that within a very short period the London Light Aeroplane Club will be in a position to show a very full membership. In this connection we would point out that those who have no intention of taking up actual flying, but who are interested and would like to help the movement, can do so at the infinitesimal cost of 1 guinea, and at the same time will have access to the aerodrome of the Club, and thus will derive, quite apart from the moral satisfaction of helping things along, a great deal of pleasure from visiting the Club's aerodrome seeing the light 'planes fly, possibly go for passenger flights in the Club's light 'planes, and inspecting the work of construction, overhaul and repairs. (Oh, yes, there will be repairs, certainly.) We, therefore, appeal to our readers to subscribe their guinea as soon as possible. Let us make up our minds that we are going to make the London Light 'Plane Club a huge success, and let us try to make it, within the next few months, the largest light 'plane club in the world.

Write today to the Secretary of the Royal Aero Club, 3, Clifford Street, London, W. 1, for particulars and application form.

Owing to the Christmas Holidays, all Editorial and Advertisement matter for the issue dated December 25 must reach the offices of FLIGHT, 36, Great Queen Street, Kingsway, W.C. 2, by first post on Saturday, December 20.

"FLIGHT" AT THE PARIS AERO SHOW

Arrangements have been made for FLIGHT to be on sale in the Grand Palais during the French Aero Exhibition. Our stand is in the gallery, at the Champs-Elysees end of the building, and visitors wishing to leave messages relating to Editorial or Advertising matters should hand them to the Attendant.



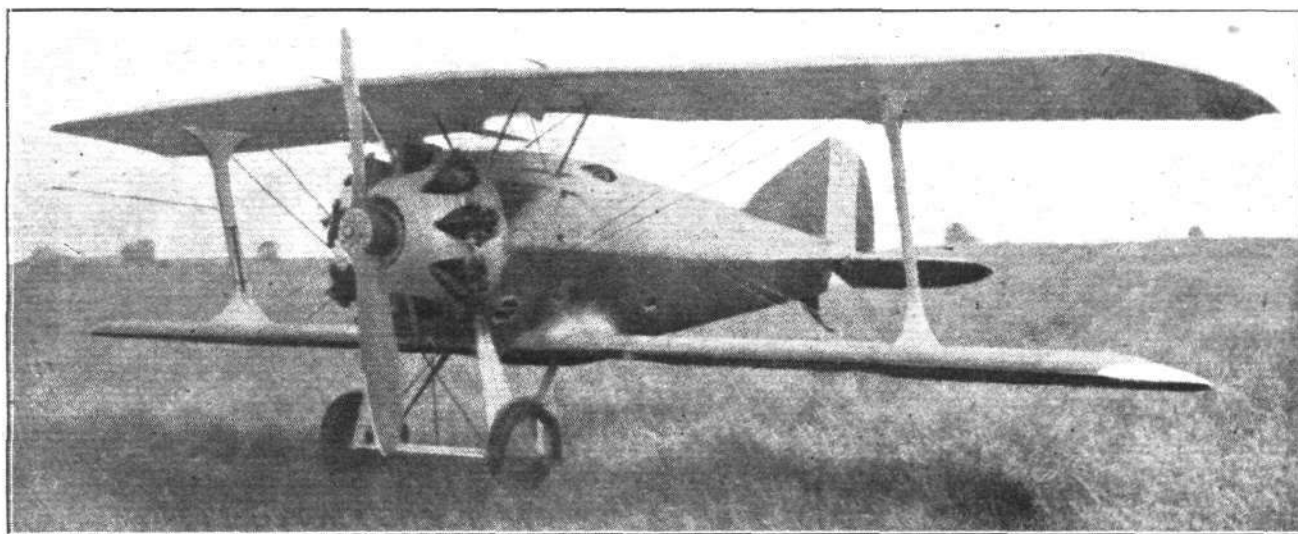
(Continued from p. 777.)

BLERIOT AERONAUTIQUE

It is to be feared that many visitors to the Grand Palais may have missed the Blériot exhibits altogether, as the stand allotted to the famous French constructor is tucked away under one of the galleries. Of the exact cause for this we have no knowledge, but a rumour is current to the effect that M. Blériot had at first decided not to exhibit, and that when, at the last minute, so to speak, he altered this decision all the main stands had been taken and he had to be satisfied with the

equipment consists of two machine-guns firing through the propeller, but if desired another two can be fitted on the top plane.

The Spad 51 is mainly interesting on account of the very excellent climb which the "Jupiter" engine (built, of course, by Gnome and le Rhone) is claimed to give it. We were unable to obtain the actual figures as ascertained by the *Section Technique*, but the Spad 51 is claimed to be the best climber (*grimpeur*) in the world. The ceiling is stated to be



The Bleriot-Spad type 51 single-seater fighter, French-built "Jupiter" engine, is armed with four machine-guns. This machine is claimed to be the world's best climber.

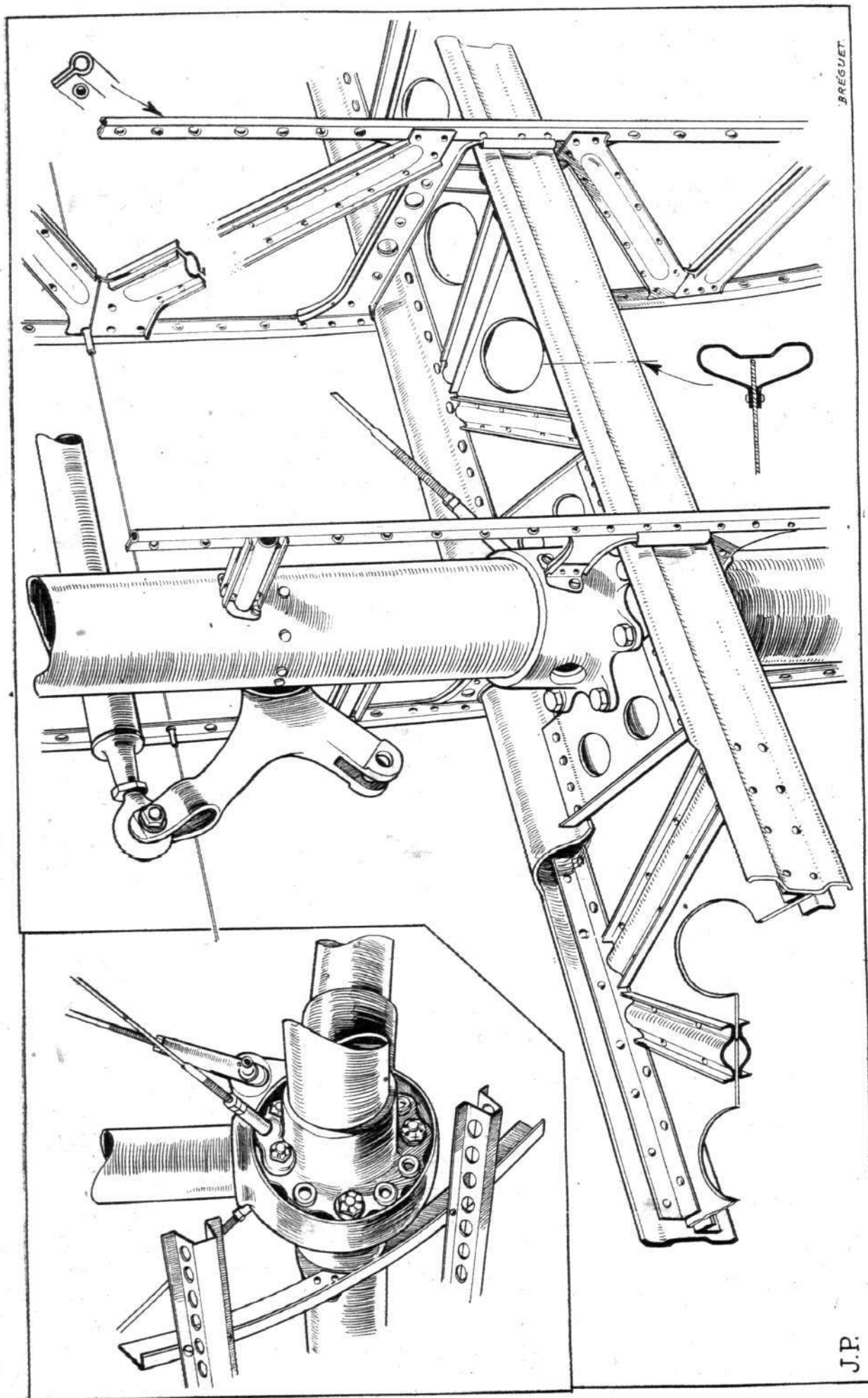
present position, which is certainly not at all in keeping with the importance of one of France's oldest constructors and one of the pioneers of aviation.

Three machines are exhibited on the Blériot stand, all of which are of typical Spad-Herbemont design, with *monocoque* fuselages and single-bay, I-strut wing bracing. The Spad 81 is similar to the machine exhibited at Prague last summer, when it was fully described and illustrated in *FLIGHT*. This machine, a single-seater fighter, is fitted as standard with 300 h.p. Hispano-Suiza engine, and has a speed at ground level of 250 km./h. (156 m.p.h.), while at 7,000 m. (23,000 ft.) the speed is 205.7 km./h. (128½ m.p.h.). The machine is fitted with two Vickers or Darne machine-guns, and their supply of 800 rounds.

The Spad 61 is very similar to the 81, but in place of the Hispano a "broad-arrow" Lorraine-Dietrich engine of 450 h.p. is fitted. Like the 81, the wings are of metal construction, but, if desired, ordinary wood structure wings can be supplied instead. The speed of the 61 is slightly greater than that of the 81 owing to the greater engine power, being 260 km./h. (162½ m.p.h.) at ground level. The ceiling, fully loaded, is given as 8,000 m. (26,200 ft.). The usual

10,000 m. (32,800 ft.), and the speed at 8,000 m. (26,200 ft.) is claimed to be more than 200 km./h. (125 m.p.h.). Whereas the Spads 81 and 61 have straight top planes, M. Herbemont has returned, in the Spad 51, to his original arrangement, in which the upper wing is swept back while the lower is straight. The arrangement was, we believe, originally chosen in order to get the top centre section well forward and so improve the view, while still keeping the single I-struts at a reasonable angle. In the type 51, however, it seems probable that the sweep back has been necessitated by the short nose resulting from fitting a "Jupiter" instead of the long water-cooled engines.

The armament of the Spad 51 consists of four machine-guns, two on the upper plane and two in the fuselage, firing "through" the propeller. The standard Spad 51 has a wooden *monocoque* fuselage and metal wings, but, like the other Spads, it can also be supplied with wooden wings. The main characteristics are as follows: Length, o.a., 6.45 m. (21 ft. 2 ins.); span, 9.47 m. (31 ft. 1½ ins.); wing area, 26 sq. m. (280 sq. ft.); weight, empty, 791.5 kgs. (1,750 lbs.); useful load, 485 kgs. (1,067 lbs.); total loaded weight, 1,276.5 kgs. (2,817 lbs.).



BREGUET ALL-METAL CONSTRUCTION: Above sketch shows practically all the details of the Breguet all-duralumin wing construction. Note manner of building up the main spars, with flat webs and corrugated flanges. The ribs have lattice-bar webs and "keyhole"-section flanges. The latter are secured in place on the spars by small plates pinned through the corrugated spar flange and bent up as shown. Between the spars the ribs are stiffened laterally by piano wires over which are slipped ferrules. The sketch, it should be noted, was made while the wing was standing on its leading edge. Towards the wing tips the spar flanges take the form shown towards the left-hand side of the sketch. The inset shows the fuselage construction, tubular as regards the main structure, and with stringers of trough-section to bring the main rectangular fuselage up to a streamline form.



The Breguet XIX made famous by Lieut. Peletier d'Oisy's flight to China. With exception of the wing covering, and that of the rear portion of the fuselage, this machine is built entirely of metal.

LOUIS BREGUET

Two machines are exhibited by Société Anonyme des Ateliers d'Aviation Louis Breguet. These are both of the type XIX, made famous by the wonderful flight of Lieut. Peletier d'Oisy from Paris to China, and one of them is the actual machine used by him, which is named "Jaqueline." The other machine is shown in skeleton, so that it is possible to examine in detail the construction employed. The Breguet type XIX is probably the finest two-seater fighter possessed by France at the present time, and, with the exception of one or two features that seem open to criticism, the all-metal construction as exhibited is a very fine piece of work. It looks expensive, but we were informed that it is possible to build these machines for something like £1,000 apiece, without engine, of course. If this is indeed a fact, the Duralumin construction cannot be as expensive as it appears, and as France is in a position to manufacture her own aluminium alloys in large quantities, while steel of the high quality and in the thin strips to which we are accustomed on this side of the Channel has to be imported, the preference shown by French designers for the alloy is not difficult to understand. In the Breguet XIX Duralumin is used in the form of tubes, pressed sections, rolled sections, and rivets. The forward part of the fuselage is covered with sheet Duralumin in the form of very narrow channel sections, the side walls of adjoining channels being riveted together. This form of covering was exhibited by the Breguet firm several years ago, and is now in general use on the Breguet XIX, of which large numbers have been supplied to the French Government, as well as to many foreign governments.

One of our photographs shows the Breguet XIX in three-quarter front view, while a set of sketches illustrates some of the main constructional features. The fuselage is of the tie-rod braced type, and has four main longerons in the form of Duralumin tubes, with vertical and horizontal struts of the same material. The joints are in the form of castings of circular shape, bolted to which are flanged sockets for the longerons. These are in short straight lengths, inserted in the sockets and pinned. Thus if a longeron is damaged the defective piece can be removed and a fresh one inserted in its place. The bracing wires or rods terminate in a species of ball-and-socket joint, as indicated in one of our sketches, held in place on the strut fitting by the bolts around the flanged collar. The main structure of the fuselage is of rectangular section, but is built up to a streamline form by hoops and stringers as shown in the sketch. Finally the rear portion is covered with fabric.

The wing construction is very clearly shown in one of our sets of sketches, and shows a considerable departure from the earlier Breguet all-metal machines. Generally speaking, it may be said that the form of construction has been simplified, while at the same time the design is now such as to be much more in conformity with British practice in metal construction, although ours is usually steel and not Duralumin. Some

years ago M. Louis Breguet adopted the Zeppelin lattice type of girder construction, with pressed lattice bars arranged in X-formation. This type of construction, which has given good results in airship work, but does not appear altogether satisfactory in aeroplane construction, he has now almost entirely abandoned, and the method indicated in the sketches has been evolved in place of the Zeppelin lattice work.

The main spars are built up from flat straight webs of sheet Duralumin, to which are riveted the rolled flanges, which now have their edges well removed from the position of maximum stress, and are, moreover, corrugated for stiffness. The flat spar web is stiffened by corrugated strips riveted through as shown in the sketch. The internal drag bracing is in the form of tie-rods, and the compression strut sockets and bracing wire attachments are similar in principle to those used in the fuselage.

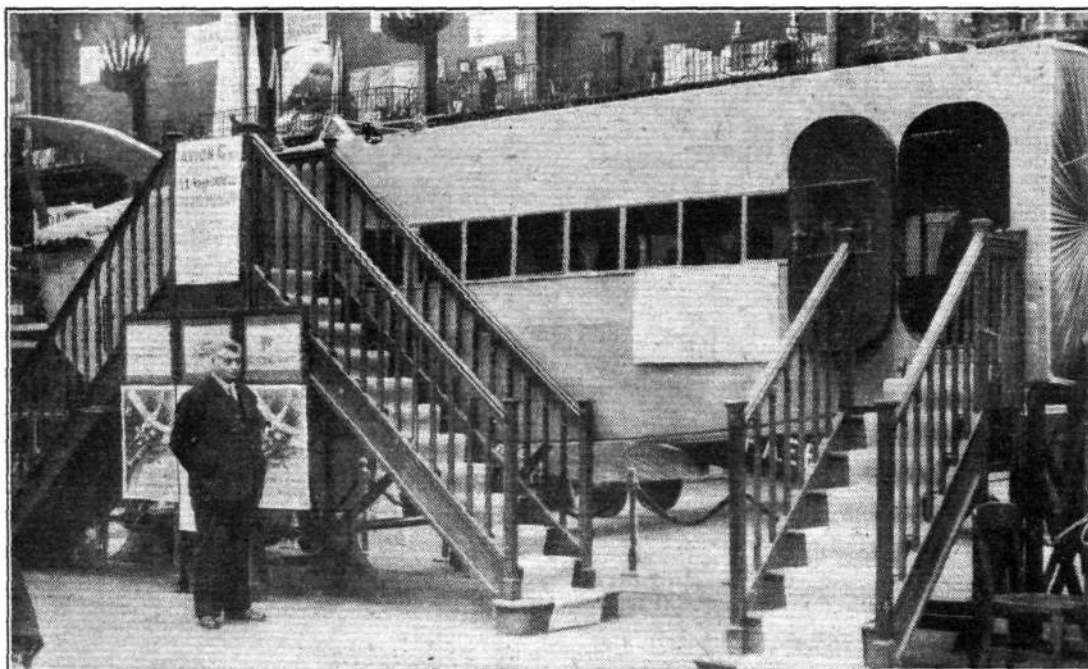
The ribs of the Breguet XIX have flanges rolled to what, for want of a better expression, we may term "keyhole" sections. The actual form taken by the rib flanges will be clear from our sketch. The webs of the ribs are in the form of a warren truss, with pressed Duralumin bars somewhat of Zeppelin type, but the bars on each side lying back to back instead of crossing one another.

Of "sesquiplan" type, the Breguet XIX has a lower plane of small chord and span, and a larger upper plane, the two being braced by single I-struts and streamline wire. The wing bracing is, however, unusual in that the anti-lift wires only lie between the planes, the lift wires being taken from the lower plane to the chassis. Whether or not this is a good feature may, perhaps, be open to doubt, as any slight damage to the undercarriage might result in serious weakening of the wing structure. The undercarriage itself is of unusual form in that the wheels are internally sprung. The "legs" are in the form of enclosed vees carrying short stub axles at their lower end. The wheels are aluminium castings with spokes of the artillery wheel type, and the rubber shock absorbers are enclosed in the large hub of the wheels, the moving parts working in very short and narrow guides. It would appear that trouble is likely to arise from grit and dirt getting into the guides and preventing them from functioning properly. In that case the machine might conceivably be thrown on its nose. Personally we should prefer to see a more orthodox shock-absorbing gear fitted on what is otherwise a very excellent machine.

A very formidable armament is carried by the Breguet XIX, consisting of one synchronised machine-gun for the pilot, two machine-guns on a Scarff ring for the gunner, and a third machine-gun mounted in the floor and firing down and aft. Then there is photographic equipment, wireless, etc., while if the machine is used as a day bomber these are mounted and released from the opening for the camera, while others are supported under the lower plane.

It will thus be seen that the Breguet XIX is a formidable opponent, rendered even more so by the excellent performance resulting from the very "clean" lines. Following are the main dimensions, weights, etc.; Length o.a., 9.51 m.

This photograph does not show the grand staircase, but illustrates the large cabin exhibited on the Caudron stand. This machine has flown from Paris to Moscow.



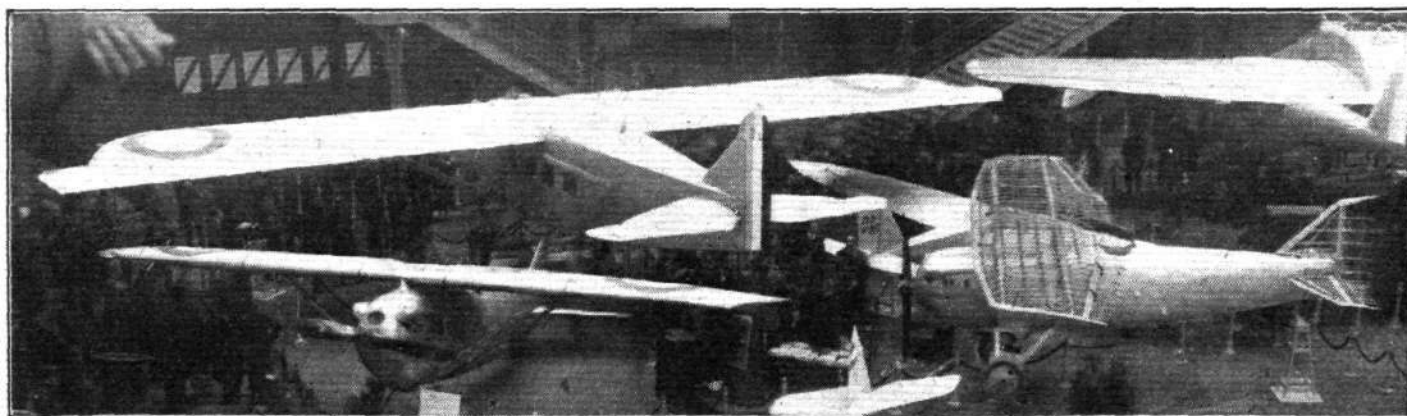
(31 ft. 2½ in.); height, 3.34 m. (10 ft. 11 in.); span, upper plane, 14.32 m. (48 ft. 7 in.); span, lower plane, 11 m. (36 ft. 1 in.); wing area, 50 sq. m. (538 sq. ft.). The machine can be supplied fitted with either of the following engines: 480 h.p. Renault, 450 h.p. Lorraine-Dietrich, or 400 h.p. Lorraine-Dietrich. With the 480 h.p. Renault the weight empty is 1,270 kgs. (2,795 lbs.); with the 400 h.p. Lorraine 1,212 kgs. (2,670 lbs.); with the 450 h.p. Lorraine 1,189 kgs. (2,618 lbs.). Following are the performance figures for the machine fitted with the 400 h.p. Lorraine engine, and carrying a useful load of 810 kgs. (1,780 lbs.): these figures have been officially passed by the *Section Technique*: Maximum speed at 2,000 metres: 210.5 km./h. (131½ m.p.h.); speed at 5,000 m. 194 km./h. (121½ m.p.h.). Ceiling 6,700 m. (22,000 ft.). Climb to 1,000 m. in 3 mins. 30 secs.; 2,000 m. in 7 mins. 28 secs.; 3,000 m. in 12 mins. 41 secs.; 4,000 m. in 19 mins. 27 secs.; 5,000 m. in 29 mins. 53 secs.; and 6,000 m. in 50 mins. 56 secs. When fitted with the 480 h.p. Renault, and carrying 1,040 kgs. (2,290 lbs.) useful load, the performance is as follows: (Speed at 2,000 m. 222.5 km./h. (139 m.p.h.); at 5,000 m. 204 km./h. (127.5 m.p.h.). The times to 1,000, 2,000, 3,000, 4,000, 5,000 and 6,000 metres are as follows:— 4 mins. 0.07 sec., 8 mins. 14 secs., 12 mins. 59 secs., 19 mins. 35 secs., 29 mins. 19 secs., and 47 mins. 49 secs. Ceiling, 7,000 m. (23,000 ft.).

Carrying the same useful load, but fitted with 450 h.p. Lorraine, the speed is 210.5 km./h. (131½ m.p.h.) at 2,000 m. and 194 km./h. (121 m.p.h.) at 5,000 m., and the climbs to the altitudes previously mentioned occupy: 3 mins. 30 secs., 8 mins. 11 secs., 13 mins. 36 secs., 21 mins. 12 secs., 34 mins. 14 secs., and 56 mins. 24 secs. The ceiling is 6,500 m. (21,300 ft.).

THE CAUDRON MACHINES.

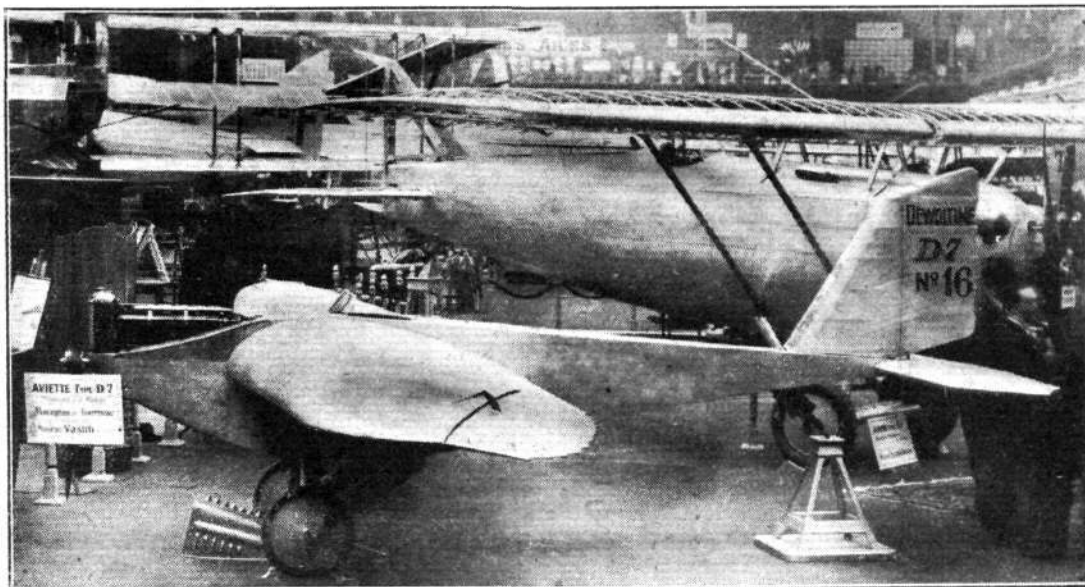
From every point of view the Caudron exhibit at this year's Paris Aero Show is regarded by many as being disappointing. The machines shown are in most cases old types, or at any rate so similar to the older types as to be indistinguishable from them, although in some instances new series numbers appear to have been given. Two of the four or five complete machines shown are two-seater school 'buses with different engines, but apart from a notable and welcome improvement in the form of streamline wires in place of piano wire in the wing bracing, they are the same that have appeared year after year at the Grand Palais. To say that the stand is disappointing is in no way a criticism of Caudron designing skill, but is merely meant to indicate that the firm has preferred to exhibit old and well-tried types rather than do as one or two other firms have done, and as too many French firms were in the habit of doing some years ago, showing experiments of doubtful value. The sheer simplicity of the Caudron methods of construction renders their machines peculiarly suitable for school work, and we understand that as a matter of fact the Caudron factory has been one of the most successful in selling machines. But to the visitor who goes to the Paris Aero Show expecting to see new machines, the Caudrons are disappointing inasmuch as they are mostly well and—let it be freely admitted—favourably known.

The Caudron exhibits include a two-seater fighter of very straightforward, but rather clean lines. It is known as the type C.99, and is fitted with 450 h.p. Hispano-Suiza engine. In general design the machine is a normal two-bay braced biplane, the upper plane of which is of slightly larger dimensions than the lower. The armament consists of a synchronised gun for the pilot, two guns on a Scarff ring for the



ON THE DEWOITINE STAND: On the left is seen a DICI, which had to land in a thick fog and turned over without sustaining other damage than a bent rudder and one or two punctures in the wing covering. In the background is the large commercial monoplane, while on the right is a single-seater fighter similar to the DICI except for the cabane, which is slightly different in construction.

Two more Dewoitines: In the foreground the light monoplane with 6-cylinder Vaslin engine, and behind it the D.1 single-seater fighter all-metal monoplane with 300 h.p. Hispano-Suiza.



gunner, who also serves a third machine-gun firing through the floor of the rear cockpit. Camera and wireless outfit are carried. Constructionally, the C.99 is of perfectly normal type and does not call for any comment. The main dimensions, etc., are:—Length, o.a., 9.7 m. (31 ft. 10 in.). Span: upper plane, 14 m. (45 ft. 11 in.); lower plane, 12.75 m. (41 ft. 10 in.); wing area, 48 sq. m. (516 sq. ft.). Weight, empty, but including water, 1,175 kgs. (2,585 lbs.); weight of fuel, 255 kgs. (560 lbs.); useful load, 400 kgs. (880 lbs.). Total loaded weight, 1,830 kgs. (4,025 lbs.). Speed at ground level, 200 km./h. (125 m.p.h.).

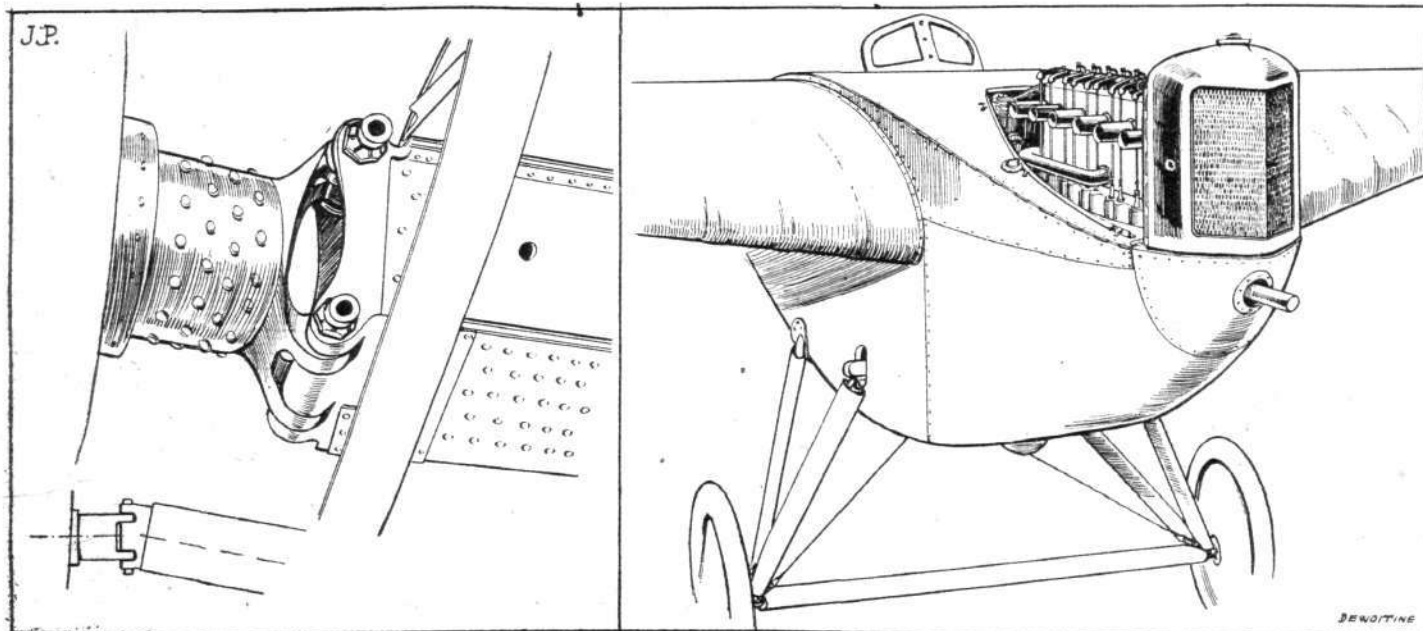
The only other new machine on view, and of that only the front portion of the fuselage is shown, is the Caudron C.81, a very large three-engined cabin machine. It may be remembered that this is a type which has long been a favourite with the Caudron firm, having been produced in various sizes and with different power plants. In view of the fact that we on this side of the Channel are now beginning to turn our attention to the three-engined machine, it is of interest to remember that M. Caudron can probably claim the distinction of having first introduced the type in the form in which it is now generally employed, *i.e.*, with one engine in the nose of the fuselage and one on each side on the lower plane. The C.81 is provided with a very large saloon, and a large placard on the stand announces that the machine flew, in November of this year, from Paris to Moscow with landings at the following towns: Strasburg, Prague, Warsaw, Vilna, Minsk, and Smolensk.

CONSTRUCTIONS AERONAUTIQUES E. DEWOITINE

A COMPARATIVE newcomer to the French aircraft industry M. E. Dewoitine, whose experimental works and offices are now at Chatillon-sous-Bagneux (Seine), while the original works at Toulouse are devoted to quantity production, is rapidly gaining a leading position among French aircraft designers. Probably the first introduction of M. Dewoitine to readers of *FLIGHT* dates back to the 1920 Paris aero show, when a scale model of the Dewoitine twin-engined commercial monoplane was shown. Incidentally the same machine is, we understand, being produced as a night bomber. At this year's Paris Show M. Dewoitine is showing four machines, two of which are of the D.1 C.1 type, while the third is the D.7 light monoplane, and the fourth a large commercial monoplane.

The machine with which hitherto M. Dewoitine has had the greatest success is the all-metal single-seater fighter monoplane, the D.1 C.1. Examples of this machine have been supplied to the French and to many foreign governments, and we learn that recently the Italian government has placed an order for 150 of these machines.

The Dewoitine D.1 C.1 is a thick-wing strut-braced parasol monoplane built entirely of metal, and is fitted as standard with the 300 h.p. Hispano-Suiza engine. A slightly different version, fitted with French-built Bristol "Jupiter" engine is known as the D.9 C.1. The fuselage is of elliptical section and is built entirely of Duralumin, even to the covering



SOME DEWOITINE DETAILS: On the left is shown the manner in which the famous French designer solves the problem of a detachable cantilever tail plane spar, and on the right the nose of the Dewoitine light monoplane, with six-cylinder Vaslin water-cooled engine. The cowling over the engine has been omitted. Note the nose radiator.

Bulkheads or formers of various built-up and channel sections provide the shape, and four main longerons, with a number of light stringers, complete the framework, which is afterwards covered with sheet Duralumin riveted to formers and longerons. At the show it was not possible to obtain sketches of the fuselage construction, as both the machines shown had their fuselages entirely covered. It is gathered, however, that the construction has been found in practice to be both strong and simple to manufacture. By way of proof of the strength of his machines, M. Dewoitine exhibits a machine of the D.1 C.1 type, which was overturned at full speed when the pilot had to land in a thick fog. So far as could be ascertained the only damage sustained was a bent rudder post and one or two holes in the fabric covering of the wing.

The Dewoitine wing construction is, like that of the fuselage, entirely metallic, and the material used is Duralumin. The wing spars are of built-up box section, the sides of the spar being of channel section and the flanges flat strips, angle-sections being used in the four corners. Possibly this form of construction can be used satisfactorily with Duralumin, where one can work with considerably thicker strip, but in steel it would scarcely be found to be economical. The ribs are tubular, both as regards flanges and lattice bars, the joints being made by wrapping thin Duralumin plates around all the members to be joined, and rivetting through the whole with tubular rivets. The rib construction is, in fact, identical with that of S.E.C.M., who, we understand, build most of Dewoitine's machines (as, in fact, they appear to build the majority of the French all-Duralumin aeroplanes). The equipment is that usual in single-seater fighters, *i.e.*, two synchronised machine-guns, with 800 rounds of ammunition for each.

The main dimensions of the Dewoitine D.1 C.1 are: Length overall, 7.5 metres (24 ft. 7 ins.); height, 2.75 metres (9 ft. 1 in.); span, 11.5 metres (37 ft. 9 ins.); wing area 20 sq. metres (215 sq. ft.). The figures for weights, etc., are: Weight empty, 820 kgs. (1,800 lbs.); fuel and oil, 200 kgs. (440 lbs.); useful load (*i.e.*, pilot, armament and instruments), 220 kgs. (485 lbs.); total loaded weight 1,240 kgs. (2,725 lbs.). Power loading, 9 lbs./h.p.; wing loading, 14 lbs./sq. ft. The maximum speed at ground level is 247 km./h. (154½ m.p.h.); at 2,000 metres (6,560 ft.), 250 km./h. (156 m.p.h.). The climb to 5,000 metres occupies 15 mins. 6 secs. Practical ceiling, 8,500 metres (27,900 ft.). Landing speed, 80 km./h. (50 m.p.h.).

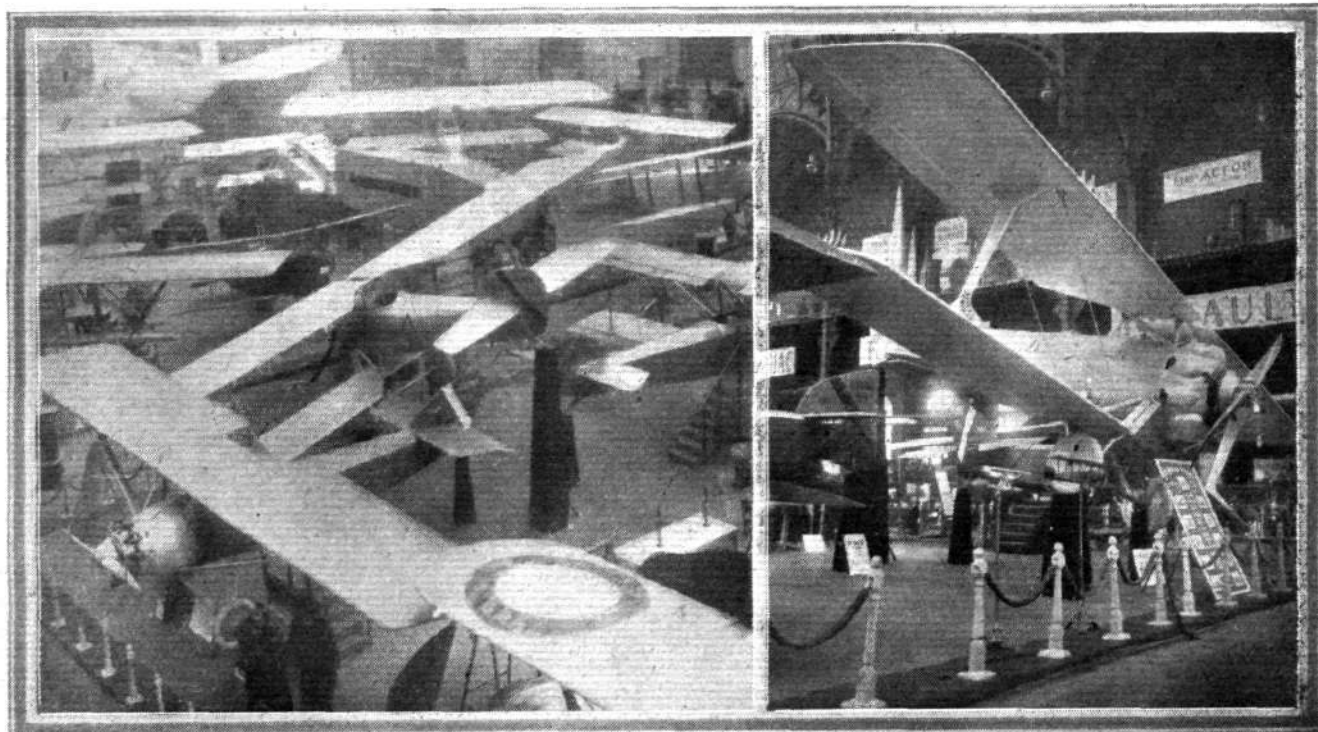
The Dewoitine commercial monoplane, the D.14, is a large machine intended to be used either as a freight carrier or as a passenger machine. As exhibited, it is fitted up to carry six passengers, but the seats can be removed in order to convert the saloon into a freight hold. The space is really divided into three separate compartments, of which normally the

front one is intended for freight and/or luggage, while the central cabin has four seats and communicates with the third compartment, containing the lavatory. At the show the front compartment is provided with two seats, giving a total passenger accommodation of six. The machine is of wood construction, but presumably if it were to be ordered in quantities it could be turned out in metal. The construction is straightforward, and does not call for comment. The main dimensions, weights, etc., are as follows: Length overall, 12.2 metres (40 ft.); height, 3.35 metres (11 ft.); wing span, 18.8 metres (61 ft. 8 ins.); wing area, 45.5 sq. metres (490 sq. ft.); weight of machine empty, 1,850 kgs. (4,070 lbs.); weight of fuel and oil (for four hours), 350 kgs. (770 lbs.); useful load, 600 kgs. (1,320 lbs.), *i.e.*, pilot and accessories, 100 kgs. (220 lbs.), and passengers and/or freight, 500 kgs. (1,100 lbs.). Total loaded weight, 2,800 kgs. (6,160 lbs.). The machine exhibited is fitted with 450 h.p. Lorraine type 12 EW, but the engine mounting is so designed that the engine can quickly be changed, and, if desired, a 450 Hispano or 500 Salmson can be fitted instead. The Dewoitine D.14 has a speed at 2,000 metres, of 180 km./h. (112.5 m.p.h.) and a landing speed of 78 km./h. (48.75 m.p.h.).

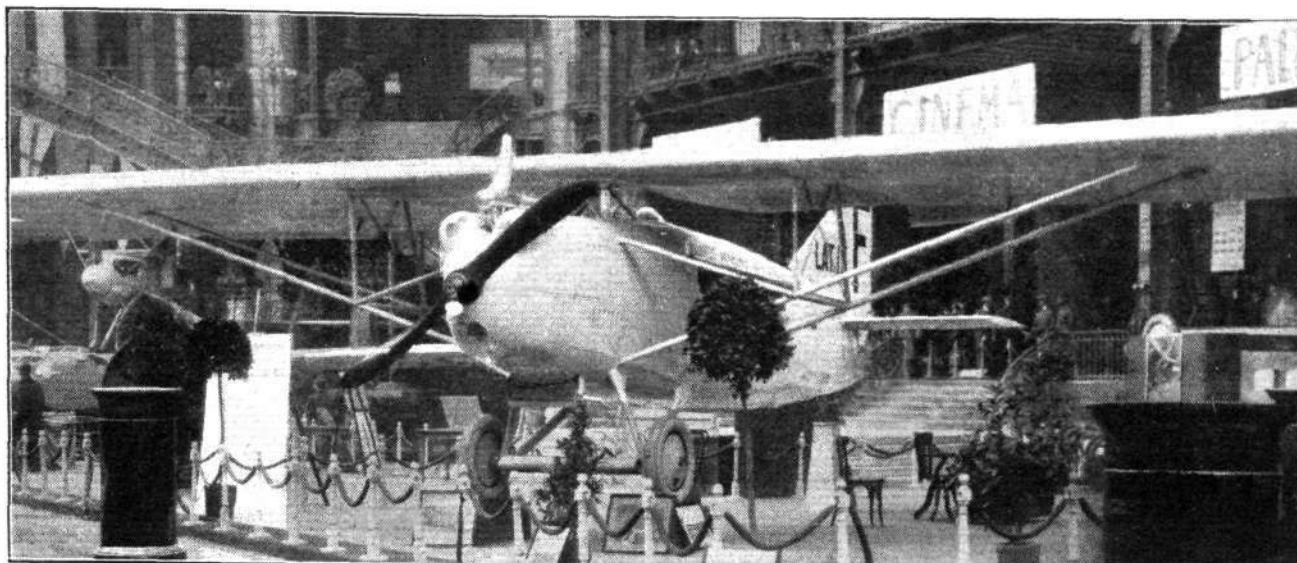
The last machine on the Dewoitine stand is the little light monoplane, the type D.7, which is similar to that used by Barbot in his cross-Channel flight, with the exception that a new Vaslin engine has been fitted. This is a six-cylinder in line, water-cooled, of 2 litres capacity. The engine is stated to weigh 62 kgs. (136½ lbs.) without propeller and radiator, but including oil, and to develop 35 h.p. at 2,200 r.p.m. and 55 h.p. at 3,000 r.p.m. The machine is, of course, a single-seater, and we learn that in small quantities the price is 35,000 fr. (approximately £430 at present rate of exchange). If ordered in larger quantities the price is expected to be reduced to about 20,000 fr. (£250). It is not proposed at present to give a very detailed description of this machine, as we hope to return to it in a subsequent issue. The performance claimed for it is extraordinarily good, and is somewhat difficult to believe. A top speed of 150 km./hr. (94 m.p.h.) is claimed, and a landing speed of 30 km./hr. (18½ m.p.h.). Neither figure seems probable, the latter because the wing loading is about 4 lbs./sq. ft. and the former because the wing section employed is of the Joukowsky or "tadpole" type. The Vaslin engine is, however, very interesting, and we hope to give a detailed description of it at an early date.

AVIONS HANRIOT

THE Hanriots, Père and fils, who were among the pioneers not only of French aviation, but of aviation in general, are represented at the Grand Palais this year mainly by school machines of various types, a class of machine with which they have been singularly successful, although they have also



ON THE HANRIOT STAND: On the left a general view of the stand, showing the monoplane in the foreground. On the right the biplane single-seater fighter with Salmson engine



The Latecoere Lat. 17 is a small single-engined cabin machine of 300 h.p. carrying four passengers at a speed of 120 m.p.h., and is intended for use on the France-Morocco route.

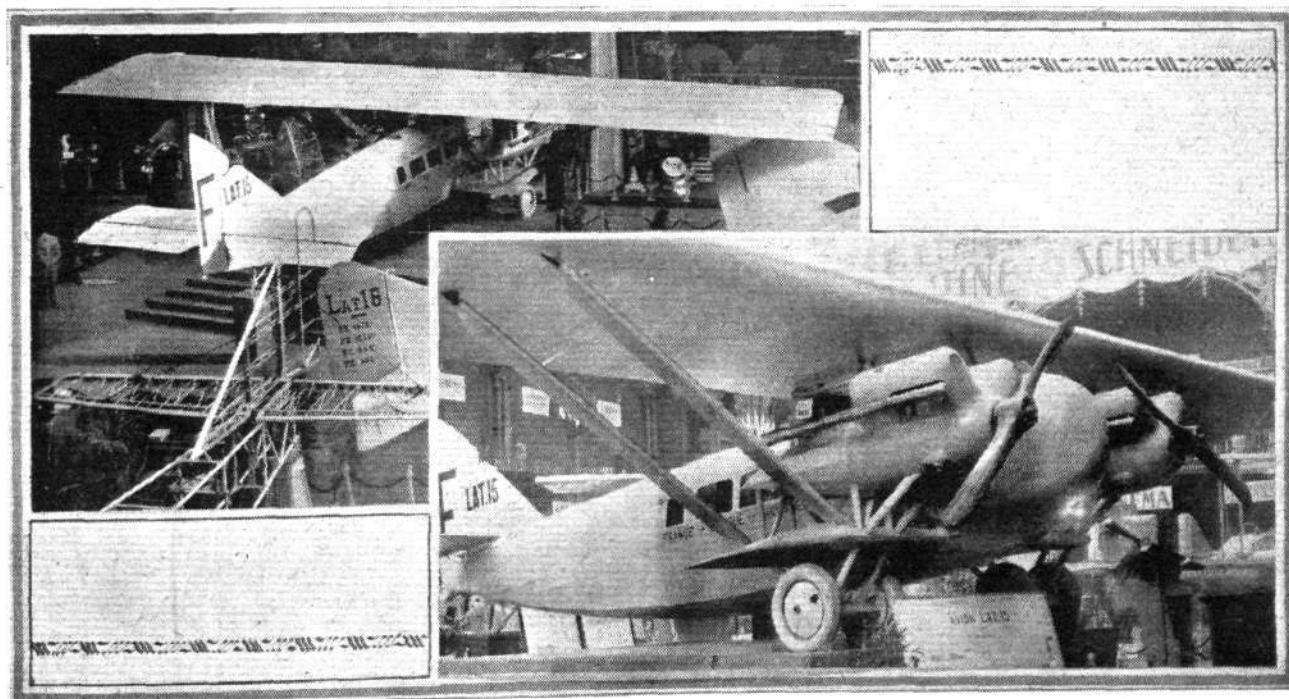
on view a single-seater fighter with Salmson engine. Of the school machines it scarcely seems necessary to speak here, beyond placing on record the fact of their presence. One exception is the monoplane two-seater intended for advanced training. This machine, which is shown fitted with a Salmson engine of 120 h.p., is known as the type H.34, and differs somewhat from its prototype, the standard H.D.34, which is normally fitted with 80 h.p. le Rhone engine. As exhibited the machine is equipped with oleo undercarriage of rather neat type, which should further make the machine suitable for the rough handling it may be expected to receive at the hands of semi-skilled pilots. One gathers that the type H.34 is particularly nice to fly, and that it is capable of being stunted so as to enable pilots undergoing advanced training or "refresher" courses to practise all the various manoeuvres which have to be undertaken in the course of an aerial combat. No particulars of the H.34 were available on the stand beyond those relating to the le Rhone-engined machine, and as it appears likely that the figures for weight and performance are materially altered by the substitution of the Salmson engine, no useful purpose is served by giving the figures.

The most interesting machine on the Hanriot stand is undoubtedly the single-seater fighter biplane, type H.31, which is fitted with a 500 h.p. Salmson radial water-cooled engine. This machine, as well as the training monoplane, is

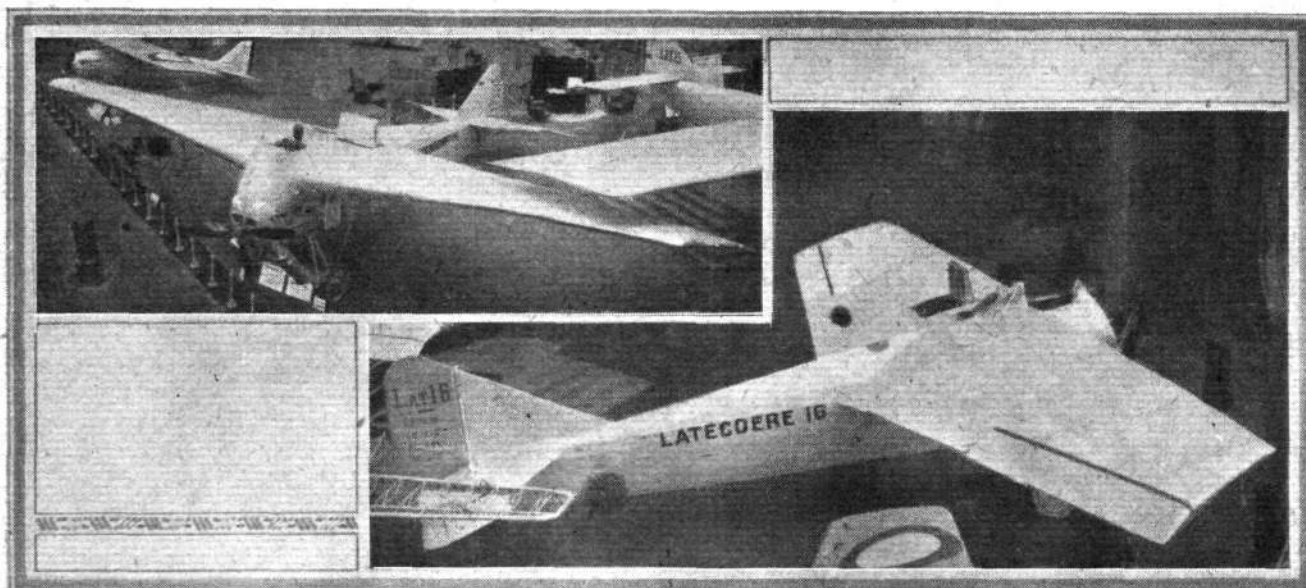
shown in the accompanying photographs. The H.31 is a partly metallic biplane, somewhat similar in construction to the biplane shown in skeleton at the 1922 Paris show, but quite dissimilar in outward appearance. The wings have main spars of Duralumin box section (rectangular-section tubes) and composite ribs. The wing cellule is a single-bay, I-strut structure of normal type. The fuselage is constructed of Duralumin tubes forming longerons and triangulated struts. The resultant rectangular-section fuselage is built up to a streamline form by the addition of longitudinal stringers.

The 500 h.p. Salmson radial engine is almost entirely cowled-in, each cylinder having a fairing in front of it, as shown in one of the photographs. The Andre radiator is mounted under the belly of the fuselage, on the front chassis struts.

The main characteristics of the Hanriot H.31 are: Length overall, 7.16 m. (23 ft. 5 ins.); wing span, 11.5 m. (37 ft. 9 ins.); wing area, 33.5 sq. m. (361 sq. ft.). Weight empty, 1,144 kgs. (2,520 lbs.); useful load, 571 kgs. (1,255 lbs.); total loaded weight, 1,715 kgs. (3,775 lbs.). Power loading, 7.55 lbs./h.p.; wing loading, 10.45 lbs./sq. ft. Maximum speed at ground level, 250 km./hr. (156 m.p.h.); speed at 8,000 m., 240 km./hr. (150 m.p.h.). Climb to 5,000 m. (16,400 ft.) in 13½ mins. Ceiling, 8,000 m. (26,200 ft.).



The twin-engined Latecoere, Lat. 15, has its engines placed close to the fuselage, and although this reduces the turning moment when one engine is stopped, it seems likely that the resistance of three streamline bodies placed so close together is somewhat high.



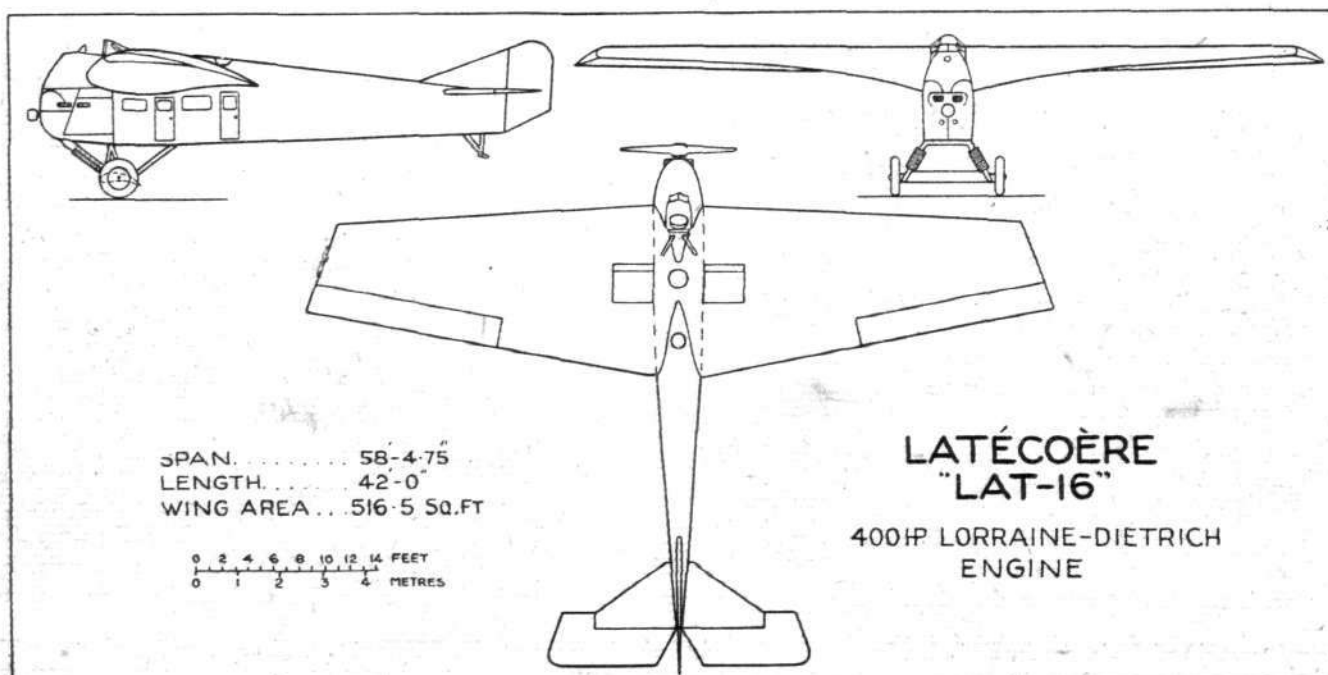
The Latécoère monoplane, Lat. 16, is a single-engined machine with high performance, designed for the France-Africa lines.

SOCIÉTÉ INDUSTRIELLE D'AVIATION LATECOÈRE

THERE are two Latécoère stands at the exhibition this year—one in the Grande Nef and a smaller one in the side building or annexe opposite to the main entrance. On the large main stand are shown two machines—the Lat. 15 and the Lat. 16—while on the smaller stand is a Lat. 17. All are commercial machines, if by "commercial" one does not necessarily mean "economical" machines. The Lat. 15 is a twin-engined *sesquiplan* whose two 220 h.p. Lorraine-Latécoère engines are mounted on short wing stumps growing out of the sides of the central fuselage. In judging the Latécoère machines it should be borne in mind that they are all designed for rather special conditions, and that, therefore, it would be unfair to compare them with British or German commercial machines designed for use under totally different conditions. Thus the Toulouse-Rabat-Casablanca route, operated by Latécoère with great success for several years, requires long distances to be covered without alighting, and the machines used must have a fairly high cruising speed in order to be able to combat head winds of considerable force. If, therefore, the power expenditure per passenger carried or the useful load per horse-power, appears somewhat uneconomical, one should not on that account hastily condemn the machines as being "uncommercial." The records of the *Lignes Latécoère* show that extraordinarily good work has been, and is being, done over a most difficult route, and the existing routes, it should be remembered, are about to be extended to Dakar, with a maritime service to Pernambuco. It is, perhaps, difficult for

British readers to realise the difficulties which the regular operation of such a service imposes, but it may be taken for granted that they are very great, and we think every credit is due to M. Latécoère for having had the courage to initiate them and the tenacity to maintain them in spite of all obstacles. With this brief introduction we may turn to the machines themselves.

The Lat. 15, as already mentioned, is a twin-engined machine with the two Lorraine engines placed very close to the main fuselage. The latter is of excellent streamline form, as are also the engine nacelles; but it would appear likely that placing three streamline bodies as close together as they are in the Lat. 15 must necessarily result in a considerable increase in head resistance, so that the trouble taken in streamlining the individual bodies may be largely wasted by placing them so close together. One realises, of course, that the designer desired to keep his two power units close together so as to reduce the turning moment when one engine stops. (The Lat. 15 was, as a matter of fact, flown on December 2 for one hour at 1,000 m. on one engine of 250 h.p., and carrying a useful load of 2,350 lbs.) As exhibited at Paris the Lat. 15 is fitted up to carry six passengers only, which seems a small number for 440 h.p. (i.e., 73½ h.p./passenger). It should, however, be pointed out that the total useful load of the machine is more than 2,000 lbs., so that in addition to the six passengers a considerable amount of luggage and/or goods can be carried. The exact amount of payload available will, of course, depend upon the length of the stages that have to be flown without landing. For a range of 500 km. (312 miles) the



General arrangement drawings of the Latécoère Lat. 16 monoplane.

useful load is 1,200 kgs. (2,640 lbs.), while for a range of 2,000 km. (1,250 miles) the useful load is 355 kgs. (780 lbs.). These figures may be said to represent the two extremes, and, of course, any intermediate combination of range and pay load is possible. They show that the Lat. 15 is a good deal more useful than a mere mention of the number of passengers for which there is accommodation would indicate.

Constructionally the Lat. 15 is of the composite type, with duralumin wing spars, wood ribs and fabric covering, while the fuselage is a duralumin tube structure with duralumin covering in front and fabric covering at the rear. The wing bracing tubes slope outwards from the lower wing stumps, and under each engine there is a two-wheeled under-carriage. The propeller tips pass very close to the nose of the fuselage, and it might be expected that considerable propeller "flutter" and vibration might arise. The pilot's cockpit is in the extreme nose of the fuselage, and the view forward should be excellent, although sideways it is probably somewhat restricted by the engines, as these are much farther forward in relation to the pilot than in British twin-engined machines.

The main dimensions of the Lat. 15 are: Length overall, 11.84 m. (38 ft. 10 ins.); height, 3.72 m. (12 ft. 2 ins.); wing span, 18 m. (59 ft.); wing area, 54 sq. m. (582 sq. ft.). The weight of the machine empty is 1,650 kgs. (3,630 lbs.); with a fairly average proportion of fuel to paying load the total loaded weight is 3,135 kgs. (6,900 lbs.), the load being made up as follows: Crew, 175 kgs. (386 lbs.); fuel and oil, 370 kgs. (814 lbs.); pay load, 940 kgs. (2,070 lbs.). At ground level the maximum speed is stated to be 180 km./h. (112.5 m.p.h.), and the cruising speed is 150 km./h. (94 m.p.h.).

The Latécoère Lat. 17 is a small (relatively) parasol monoplane, described as an *avion postal*. It is fitted with 300 h.p.

Renault engine, and is equipped to carry four passengers as well as a certain quantity of mails or goods. The space for mail bags is in the central portion of the monoplane wing, while under the pilot's cockpit (the pilot is placed ahead of the cabin, under the wing) is a luggage compartment. As a mail aeroplane the Lat. 17 has to have a fairly high performance, and it is stated that the top speed is 200 km./h. (125 m.p.h.). The main dimensions are: Length o.a., 31 ft. 10 in. wing span, 14.64 m. (48 ft.); wing area, 35.8 sq. m. (385 sq. ft.). Weight, empty, 1,107 kgs. (2,435 lbs.); crew, 100 kgs. (220 lbs.); fuel, 300 kgs. (660 lbs.); useful load, 450 kgs. (990 lbs.); total loaded weight, 1,957 kgs. (4,305 lbs.).

The Latécoère Lat. 16 is a cantilever monoplane, in which the inner ends of the two wing-halves are of great thickness. The machine is shown in the accompanying photographs and scale drawings, which should make the general arrangement clear. The nose, it will be seen, is extraordinarily deep, and the pilot, seated ahead of the wing, is placed *above* the engine, which is placed low. The machine is chiefly remarkable for its large cargo space, more than 3 metres cubes, and has a fairly good performance. Practice has shown, however, that it is not quite fast enough to ensure the France-Morocco trip (1,200 miles) being made in one day during the winter months, and the Lat. 17 was, therefore, produced to take its place as a mail carrier. The Lat. 16 has two small cabins, each seating two passengers. The cabins are not particularly comfortable in appearance at any rate, and one would not relish the idea of spending a whole day in one of them. The particular machine exhibited at the Show had been flown up from Toulouse. With 400 h.p. Lorraine engine, the Lat. 16 has a top speed of 180 km./h. (112.5 m.p.h.). The weight empty is 1,670 kgs. (3,670 lbs.); crew, 80 kgs. (176 lbs.); fuel, 400 kgs. (880 lbs.); paying load, 350 kgs. (770 lbs.); total loaded weight, 2,500 kgs. (5,500 lbs.).

(To be concluded.)

Sir Sefton Brancker's Air Tour

SIR SEFTON BRANCKER resumed his aerial tour to India on December 16, when he left Constantinople for Aleppo on the D.H. 50 (Siddleley "Puma") piloted by Alan Cobham.

Future Plans for U.S. Airships

U.S. NAVAL and air experts laid before Congress plans for a 6,000,000 cub. ft. airship, which goes one (million cubic feet) better than the projected airships ordered by the British Air Ministry and now about to be laid down. This new American ship, it is reported, will be able to carry 22 tons pay load, and would be 785 ft. long and 122 ft. diameter. The maximum horse-power would be 3,900, the gross lift 154 tons, and the radius of action over 7,000 miles. It is further reported that a group of wealthy American business men have put forward a scheme for the purchase from Germany of airships suitable for commercial Transatlantic services.

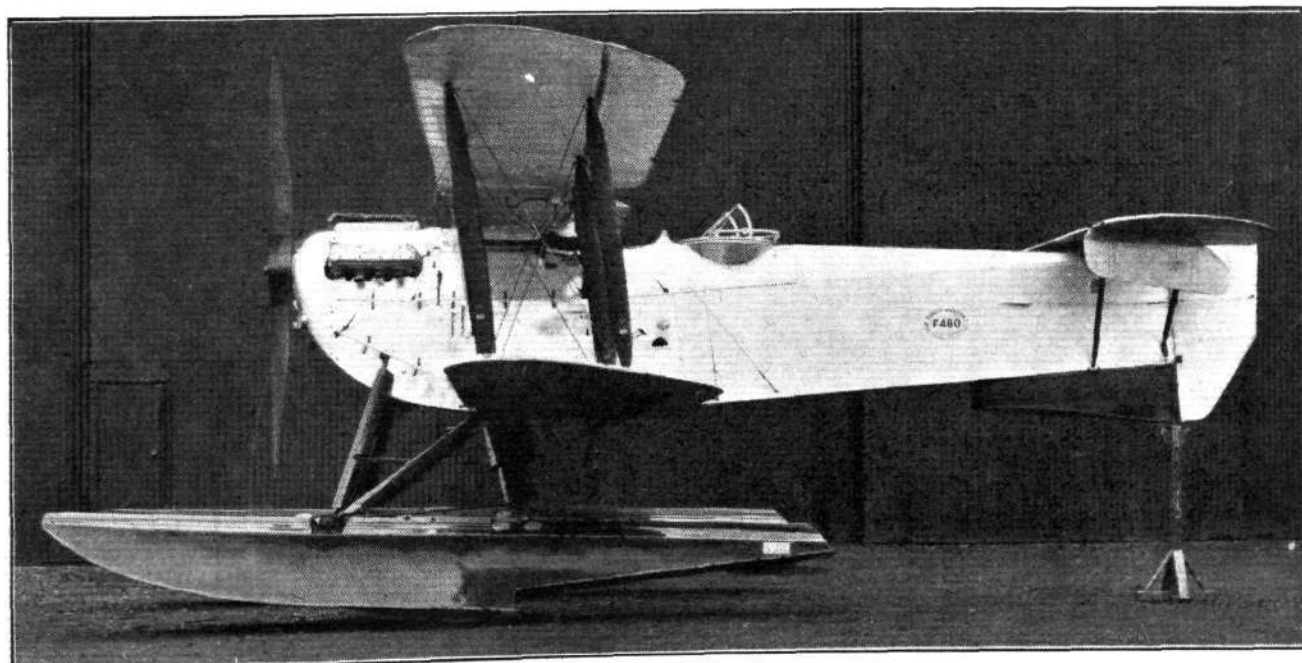
At present, however, the restrictions as to airship construction in Germany laid down by the Versailles Treaty render such a scheme impossible.

A Fatal U.S. Seaplane Accident

DURING practice with the Battle Fleet off San Diego on December 10 a U.S. seaplane manned by a crew of eight got into a spin and crashed into the sea from a height of 1,200 ft. Three officers, including the pilot, Lieut. Varini, and two enlisted men who occupied the forward cockpit, were killed. Three mechanics who were in the rear cockpit were extricated unconscious shortly afterwards.

Flying Over the Andes

SEÑOR HILLCOAT, an Argentine, has just completed a 2,000-odd miles flight from Buenos Aires to Lima, during which he flew over the Andes.



A MODERN FAIREY SEAPLANE: A side view of the Fairey "Pintail" Mark IV two-seater fighter seaplane, fitted with a Napier "Lion" engine.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

COMMITTEE MEETING

A MEETING of the Committee was held on December 10, 1924.

Election of Members.—The following new members were elected :—

Alfred Ernest Daniels.
Harold William Martin.
Flying Officer Robert Henry Seymour Spaight.
William Bertram Trethewey.
James Robertson Grant.
Pilot Officer George Douglas Green.
John Ernest Eustace Hodgson.
Harry O'Hagan.
Geoffrey Victor Peck.
Flying Officer Richard Edgar Bryant Rose.
Flying Officer John Gailey Shackleton.
Alfred Hessel Tiltman.
Flying Officer S. A. Dismore.

Congratulations to Mr. T. O. M. Sopwith.—Mr. T. O. M. Sopwith was congratulated on his election as Chairman of the Society of British Aircraft Constructors.

Air Ministry Scheme for Light Aeroplane Clubs.—The Club's proposals for dealing with the London District were considered. It was decided to form a section to be known as the "Royal Aero Club Light Aeroplane Section," with headquarters at possibly Hendon or Brooklands. In order to ascertain the amount of support likely to be given to the light aeroplane movement in the London district, a circular setting out the Club's proposals was approved for issue to those persons who had applied to the Club. [These particulars appear on page 793.]

Alterations to Club Premises.—Certain alterations to the Club premises to provide additional accommodation for the members were approved.

Deputation to the Under-Secretary of State for Air.—The following were appointed to meet the Under-Secretary of State for Air on Tuesday, December 16, 1924 :—

Lieut.-Col. F. K. McClean (Chairman of the Club); Lord Edward Grosvenor; Lieut.-Col. M. O. Darby; Lieut.-Col. J. T. C. Moore-Brabazon, M.P.; Lieut.-Commander H. E. Perrin (Secretary).

The various questions to be raised were discussed, including Government assistance to British Competitors in International Air Races, use of Aerodromes for Aviation Races, Assistance to Light Aeroplane Clubs with instructional machines and insurance, and Light Aeroplane Competition for 1925.

F.A.I. Paris Conference, December 17-20, 1924.—Lieut.-Col. M. O'Gorman and Lieut.-Commander H. E. Perrin were appointed delegates to represent the Royal Aero Club.

The following questions are down for discussion :—

Standard rate for Aviation Insurance.
Customs Carnet for Touring Aircraft.
Schneider International Seaplane Race, 1925.
Method of controlling Height Records.

Legal Committee, F.A.I.—Mr. Gordon Alchin was appointed the Representative of the Royal Aero Club on the Legal Committee of the F.A.I.

RACING COMMITTEE.

A Meeting of the Racing Committee was held on November 26, 1924, when there were present : Lieut.-Col. M. O. Darby,

in the Chair, Lieut.-Col. W. A. Bristow, Lieut.-Col. F. K. McClean, A.F.C., and the Secretary.

The Committee considered the various proposals put forward by the Society of British Aircraft Constructors on the Racing Programme for 1925.

JOINT STANDING COMMITTEE OF R.Ae.C. AND S.B.A.C.

A Meeting of the Joint Standing Committee of R.Ae.C. and S.B.A.C. was held on December 3, 1924, when there were present :—

Royal Aero Club.—Lieut.-Col. F. K. McClean, A.E.C., in the Chair, Lieut.-Col. W. A. Bristow, Lieut.-Col. M. O. Darby, Sir Guy Standing, K.B.E.

Society of British Aircraft Constructors.—Mr. C. R. Fairey, Capt. H. E. P. D. Acland, Commander James Bird, Mr. H. T. Vane. In attendance.—Mr. C. V. Allen, Secretary, S.B.A.C., Mr. H. E. Perrin, Secretary, R.Ae.C.

Racing Programme, 1925.—The Racing Programme for 1925 was considered and approved.

The King's Cup Race.—It was decided to hold a two-day race during July. The course of approximately 1,000 miles is to be covered each day on two consecutive days, returning to the starting point at the end of each day. The course will be from London to Scotland and back, with stopping places at certain large towns *en route*.

AUGUST BANK HOLIDAY MEETING.

Aerial Derby.—The Aerial Derby is to be an International Scratch Speed Race over a course of approximately 200 miles, open to aeroplanes which can accomplish a speed of not less than 150 m.p.h.

An International Handicap Race will take the place of the Aerial Derby Handicap.

Grosvenor Challenge Cup.—The Grosvenor Challenge Cup is to be confined to British machines and engines, the latter not to exceed 2,500 c.c.

Light Aeroplanes.—Sprint Races for Light Aeroplanes with engines not exceeding 1,100 c.c. will be held.

Certificates of Performance will be given by the Royal Aero Club for height in a given time; greatest speed over 3 kilometres; greatest speed over 100 kilometres; greatest height; speed range.

The course for the August Bank Holiday Meeting was left over until the Royal Aero Club had made enquiries in various districts.

EASTER MEETING

It was decided to hold an Easter Meeting preferably in the Midlands or the North. The Races will be mostly confined to Light Aeroplanes with engines not exceeding 1,100 c.c.

The Rules for all Competitions and Races are now being drawn up by the Royal Aero Club.

Schneider International Seaplane Race, 1925.—It was decided to recommend that the Regulations for 1925 be the same as in 1924.

Offices : THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

Air Conquest Anniversary

YESTERDAY, Wednesday, December 17, was the twenty-first anniversary of man's real conquest of the air. On December 17, 1903, the Wright brothers, Orville and Wilbur, who had been carrying out extensive and more or less secret experiments with "flying machines" at Kitty Hawk, North Carolina, startled the world—a somewhat sceptical world, too—by accomplishing the first (or what is generally accepted to be the first) free flight on a power-driven aeroplane.

On this occasion Orville Wright made four successful flights, the first lasting 12 seconds and the longest lasting 59 seconds. We need hardly elaborate on this historic event here, for there are surely few followers of aeronautics who do not know all the necessary details of the Wright brothers'

early efforts. We would, however, like to refer once again to the fact that, in spite of general scepticism, and even actual hostility against aerial locomotion, that prevailed at the time, our sister-journal, the *Automotor Journal*—the precursor organ of *FLIGHT*, which latter started life towards the end of 1908—was a firm believer in the experiments of Wrights and others, and regularly for years before published reports on the progress made towards the conquest of the air, both at home and abroad. In the leading article published in *FLIGHT* for December 20, 1923, dealing with the twentieth anniversary of the first free flight by Orville Wright, we touched upon this same subject and quoted extracts from the *Automotor Journal* of December 26, 1903, which make interesting reading today, and to which we would refer our readers.

LIGHT AEROPLANE CLUB, LONDON DISTRICT

THE Royal Aero Club has been selected by the Air Council to carry out in the London District the Council's scheme for Light Aeroplane Clubs.

The scheme of the Air Council is the provision of £2,000 for each club for the purchase of light aeroplanes, the equipment being maintained by the clubs, the Air Council making an annual grant to each club of £500 for two years towards the cost of this.

There is to be only one grant for the London district, and therefore the establishment of several Light Aeroplane Clubs is out of the question.

To meet the situation the Royal Aero Club has decided to form a section to be known as

The Royal Aero Club (Light Aeroplane Section).

This section will be entirely devoted to flying, and the whole of its activities will be confined to the aerodrome.

Objects.—The object of this section will be to gather together as members of the section those interested in flying, to give instruction in flying, provide and maintain a number of single- and two-seater dual-control aeroplanes for the use of its members, and to help those interested to obtain a knowledge of the construction, maintenance, repair and running of aeroplanes.

Instruction in Flying.—Aeroplanes will be provided on which members will be given instruction in flying by certificated pilot instructors. This instruction will be available until the member has passed the necessary tests to qualify him for an aviator's certificate, which in turn will qualify him for the Air Ministry "A" licence.

Having so qualified the member will be entitled to fly on the single-seater light aeroplanes.

Two-seater and Single-seater Aeroplanes.—Two-seater and single-seater aeroplanes will be provided by the section for the use of members holding the Air Ministry "A" licence.

Aerodrome Headquarters.—The aeroplanes will be at an aerodrome in the London area, possibly Hendon or Brooklands.

Personnel.—Pilot instructors, ground engineers and mechanics to give flying instruction and maintain the aeroplanes will be provided, and they will form a permanent staff.

Subscriptions.—In order to meet the expense of aerodrome, damage to aeroplanes, maintenance and personnel it is proposed to make the following charges:—

The membership will be divided into two categories:—

(A) *Full Membership*—Three Guineas per annum.

For those who wish to take instruction in flying or those who, being qualified, wish to use the aeroplanes.

(B) *Associate Membership*—One Guinea per annum.

For those who wish to obtain knowledge of construction, maintenance, repair and running of aeroplanes and take an interest in and support aviation by attending at Aerodrome and having passenger flights.

Charges for Flying

It is not yet possible to give a definite figure, as it depends on the type of aeroplanes acquired.

Two-seater Dual-control.—The charge will not exceed £1 10s. per flying hour. This charge will include the cost of instruction, oil and petrol, damage to machine and third party insurance.

Single-seater.—The charge will not exceed £1 per flying hour. This charge will include the cost of oil and petrol, damage to machine and third-party insurance.

Rules as to the general working of the flying on the aerodrome will be announced later.

Membership badges will be issued to all members to give free admittance to the aerodrome.

The above is a brief outline of the scheme as issued by the Royal Aero Club to deal with the Air Council's grant, i.e., to give reasonable facilities to all those who wish to take up flying. Membership is available to both sexes.

The scheme can be extended and possibly charges reduced, but this depends entirely on the amount of support given by those who have already expressed a wish to join an organisation which can give facilities for developing and popularising flying.

In order that the Royal Aero Club may be able to form an idea as to what extent the scheme is likely to be taken up, a form should be obtained from, and when filled up returned to, the Royal Aero Club, 3, Clifford Street, London, W. 1.

The filling up of this form is not binding in any way, and no subscriptions will be asked for until the club is in a position to provide the facilities set out in the above circular. It is merely to give an indication as to the number of members to be provided for.

It is hoped in the event of sufficient support being received to have the aeroplanes available for use by March 31 next.

Any further information can be obtained from the Secretary of the Royal Aero Club, 3, Clifford Street, W. 1.

LIGHT 'PLANE CLUB DOINGS

We shall be pleased to have reports regularly from Club Secretaries, or those directly connected with new Light 'Plane Clubs, so that by keeping our readers informed on this matter the whole movement may be helped forward to the benefit of the clubs and the popularising of "that Air feeling."

Light 'Plane Clubs are being, or have been, formed at:—

London.—Lieut.-Com. H. E. Perrin, Secretary, Royal Aero Club, 3, Clifford Street, W. 1.

Birmingham.—Major Gilbert Dennison, Secretary, Midland Aero Club, Handsworth.

Glasgow.—J. Allison, Esq., Jnr., 219, St. Vincent Street.

Lancashire.—C. J. Wood, Esq., Secretary, Lancashire Aero Club, c/o A. V. Roe and Co., Newton Heath, Manchester.

Newcastle-on-Tyne.—Alex. H. Bell, Esq., Hon. Sec., Newcastle-on-Tyne Light 'Plane Club, County Hotel.

Yorkshire.—Prof. G. Brodetsky, Yorkshire Aeroplane Club, Leeds University.

We have received the following reports on the progress being made:—

Lancashire Aero Club:—The Avro 504K presented to the Lancashire Aero Club by Colonel Darby of the Aircraft Disposal Co., Ltd., is now ready for delivery. This machine is fitted with an 80 h.p. Renault engine. The club is now

busy fitting up a workshop and club room in Manchester, and the Avro will be brought there at once for overhaul. Members will do this work themselves under the direction of experts, many of the staff of A. V. Roe, Ltd., being members of the Club. The old L-P-W Monoplane is also to be brought to the City headquarters and fitted with a motor-cycle engine. This machine will not be used for flying again, but will be used as an instruction "bus," the idea being to let learners taxi about the 'Drome and so get the feel of a machine, become accustomed to the noise and wind from the engine, and learn the general feel of the controls. The Design Committee is busy on the design of a biplane glider; it is hoped to standardise one design and build about a dozen simple gliders. Plenty of spare parts will be kept, and in this way it is expected to keep the members together until the arrival of the new light 'planes.

Newcastle-on-Tyne Light 'Plane Club.—Today, Thursday, Major Scott (Air Ministry) will be visiting the Club and will speak on "Light Aeroplane Clubs." Business with regard to lectures is progressing, and, provisionally, a list of some of these may be given as follows:—"Timber, Its Properties in Aircraft Construction"; "Practical Flying Experiences"; "Model Aeroplane Construction and Flying"; "Aerial Photography"; "I.C. Engines"; "Parachutes"; "Wireless," etc. Details will be announced later.

Hendon Aerodrome a Service Station

GIVING evidence, on December 12, at an inquiry at Hendon in connection with the L.C.C. housing scheme, Air Commodore Higgins stated that Hendon Aerodrome would shortly be occupied for Service purposes. Four

squadrons will be stationed there during next year, in connection with the Reserve Air Defence Force. One of these would be a Regular Communication Squadron, one a Special Reserve Squadron, and the other two auxiliary squadrons drawn respectively from the County and from the City of London.

Personals

To be Married.

The engagement is announced between Flight-Lieut. DENYS GILLEY, D.F.C., R.A.F., younger son of James Broad Gilley, of Grand Hotel, Torquay, and KATHLEEN BEYNON, only daughter of Mr. and Mrs. CHARLES B. STOCKEN, of 75, North Gate, Regent's Park, N.W.

The engagement is announced between FRANK ST. DAVID BENWELL LEJEUNE, R.A., and R.A.F., second son of Mr. and Mrs. F. Lejeune of Bedford, and JOYCE MARY, only daughter of Mr. and Mrs. CHARLES E. DAVIES, of Branscombe, Poynder's Road, S.W.4.

Married.

ARTHUR LESLIE CHICK, Flight-Lieut. R.A.F., eldest son of Mr. and Mrs. A. E. Chick, of Shenfield, Essex, was married on December 5, at St. Edward's Church, Golders Green, to ANGELA MARY, eldest daughter of the late JAMES GOSGROVE, of Dumfries, and Mrs. GOSGROVE, Maryhill Road, Glasgow.

Item.

The will of the late Capt. RUPERT HART MEERS, M.A., late of the R.A.F., of The Red House, Chislehurst, Kent, and of Fenchurch Street, E.C., who died on October 26, has been proved at £18,040.

The Maitland Aeronautical Collection

MANY interested collectors, and others, attended Messrs. Hodgson's auction rooms on December 11, when the valuable collection of aeronautical engravings, books, and *objets d'art* formed by the late Air-Commodore E. M. Maitland were sold. The copies in manuscript or corrected typescript of "The Log of R.34" were bought, for £105, by that keen pioneer supporter of aeronautics Sir Charles Wakefield. He also bought the autograph presentation copy of the first edition of Kipling's "Actions and Reactions," which fetched £90.

Stainless Steel

At an informal meeting of the Junior Institution of Engineers on Friday, November 21, Mr. J. G. Hopcraft spoke on the subject of "Stainless Steel." He dealt with the methods of working the metal by forging, casting and rolling, etc., and with the heat treatment. He pointed out that the special properties of stainless steel were inherent properties, and not merely superficial. The properties of withstanding heat and corrosion and remaining bright were produced immediately after tempering and removal of the scale, with polishing if necessary. The fact that the steel had to be heat treated after being worked imposed a limitation on the size of job which could be undertaken. Stainless steel had good heat-resisting qualities, and would not scale up to about

800° C., and while it could not be expected to machine like mild steel, with the right degree of hardness and a little experience in the use of the tools for the particular job, the turning and screwing, etc., of the metal could be carried out without much difficulty. A new stainless steel, combining a high degree of resistance to corrosion with extreme malleability, had recently been brought out under the name of "Stabrite," which could be produced in sheets for cold-pressed articles requiring no further heat treatment. It could not be hardened, but could be welded, soldered, and brazed fairly easily.

Aeroplane Performance Estimates

THE Minutes of Proceedings, No. 11, of the Institution of Aeronautical Engineers contains a full report of the extremely interesting Paper on "Aeroplane Performance Estimates" which was read before the Institution by Mr. R. Chadwick, on February 8 last. All the diagrams referred to in the Paper are reproduced, and the discussion which followed is also given. The publication in these "Minutes of Proceedings" of the various Papers read before the Institution is undoubtedly of considerable value to all interested in the study of aeronautics, and we would remind our readers once again that copies of these publications may be obtained from the Secretary, Inst.Ae.E., 60, Chancery Lane, W.C.2, price 1s. 6d. each.



WITH A BRISTOL JUPITER IN MESOPOTAMIA: We show above a "Nighthawk" Fighter fitted with a 400 h.p. Bristol "Jupiter" which successfully completed a test of 100 hours in Mesopotamia under trying tropical conditions. This is the same type of engine that is exhibited at the Paris Aero Show.

THE ROYAL AIR FORCE

London Gazette, December 2, 1924

Stores Branch.
Flying Officer A. J. Cox, M.B.E., is granted a permanent commn. in rank stated (Dec. 3); Flying Officer W. E. V. Richards is granted a permanent commn. in rank stated for accountant duties (Dec. 3).

Medical Branch.
The follg. are granted short service commns. as Flying Officers, with effect from, and with sen. of Nov. 19:—W. A. Beck, M.B., D.P.H., J. Parry-Evans.

Reserve of Air Force Officers.
The follg. are granted commissions on prob. in General Duties Branch, in ranks stated (Dec. 2):—

Class A.—Flying Officers A. J. R. Adam, F. Horsley, J. C. McCormick, M. V. Molony, H. L. Taylor, J. M. Walker, C. N. Wylam. **Pilot Officer** J. W. Brown.

Class B.—Pilot Officer W. Wilson.
Pilot Officer H. B. Elwell is confirmed in rank (Dec. 16, 1923) (substituted for Gazette, Nov. 25). **Flying Officer** H. A. V. Kirk is transferred from Class A to Class C (Dec. 2). The follg. relinquish their commns. on account of ill-health, and are permitted to retain their ranks (Dec. 3):—**Flight Lieut.** J. M. Burke, **Flying Officer** H. Laycock.

London Gazette, December 9, 1924

General Duties Branch.
The following are granted permanent commns. in ranks stated (Dec. 10):—**Flight-Lieut.** J. Oliver, A.F.C., **Flying Officer** T. H. French, D.F.C. The following **Pilot Officers** are promoted to rank of **Flying Officer**:—B. L. Young, Nov. 15. E. G. Whinney; Nov. 15. J. R. Pocock; Dec. 14. **Flying Officer** F. B. Lawrie is granted the hon. rank of **Flight-Lieut.**; Nov. 14. **Flying Officer**.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch.

Group Captains: J. L. Forbes, O.B.E., to Air Ministry on appointment as Deputy Director of Armament, 10.12.24. R. P. Ross, D.S.O., A.F.C., to Elec. and Wireless Sch., Flowerdown pending taking over command, 15.12.24.

Wing Commander E. D. M. Robertson, D.F.C., to H.Q. Coastal Area for duty as Fleet Aviation Officer on Staff of Commander-in-Chief Atlantic Fleet in H.M.S. "Revenge", 10.12.24.

Wing Commanders: J. H. A. Landon, D.S.O., O.B.E., to H.Q., Iraq, for Flying (Detached) duties; 27.11.24. S. Smith, D.S.O., A.F.C., to H.Q., Iraq, for Air Staff (Armoured Car) duties; 27.11.24.

Squadron Leaders: F. W. Stent, M.C., P. A. O. Leask and F. E. P. Barrington, to H.Q., Iraq; 27.11.24. L. M. Bailey, A.F.C., to No. 27 Sqn., India; 27.11.24. G. S. Trewin, A.F.C., to No. 5 Armoured Car Co., Iraq; 5.12.24. E. W. Norton, D.S.C., to No. 6 Armoured Car Co., Iraq; 5.12.24. W. B. Farrington, D.S.O., to Basrah Group H.Q.; 17.11.24. R. P. Willock, to No. 216 Sqn., Egypt; 2.11.24.

Flight Lieutenants: R. E. G. Fulljames, M.C., to No. 28 Sq. India, 2.11.24. A. Ferris to Aircraft Depot Egypt, 1.11.24. W. H. Ellison to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 4.11.24. G. O. Venn to No. 31 Sqn. India instead of to No. 5 Sqn. as previously notified, 3.10.24. J. Oliver, A.F.C., to H.Q. India, 2.11.24. S. N. Cole to No. 1 School of Tech. Training (Boys) Halton, 20.11.24. E. Burton to No. 1 Sch. of Tech. Training (Boys) Halton on transfer to Home Estab., 4.11.24. T. M. Williams, M.C., D.F.C., to No. 406 Flight, Leuchars, 5.12.24.

Flight Lieutenants: R. L. Stevenson, M.B.E., to No. 3 Wing H.Q., India. J. A. G. Haslam, M.C., D.F.C., to No. 5 Sqn., India. E. Thornton, to Aircraft Depot, India. A. C. Sanderson, D.F.C., to No. 31 Sqn., India. A. H. Stradling, O.B.E., to Rest Camp, Iraq. J. G. S. Candy, D.F.C., to Aircraft Depot, Iraq. T. S. Ivins, to No. 8 Sqn., Iraq. A. W. Symington, M.C., and G. M. Lawson, M.C., to H.Q., Iraq. O. R. Gayford, D.F.C., to No. 1 Sqn., Iraq. The foregoing are all posted with effect from 27.11.24. J. F. Lawson, A.F.C., and F. Thomasson, D.F.C., M.M., to H.Q., Iraq; 5.12.24. D. Colyer D.F.C., to Stores Depot, Iraq; 5.12.24.

Flying Officers: G. R. Oliver to R.A.F. Depot on transfer to Home Estab., 4.11.24. E. Cuthbert, C. S. Hartung, M.M. and A. P. C. Hannay, M.C., to

L. Hamilton, M.B.E., D.F.C., is placed on half-pay, Scale B; Dec. 3. **Flight-Lieut.** J. E. B. B. Maclean, D.F.C., is placed on retired list; Dec. 10. **Flight-Lieut.** E. J. Cooper, D.S.C., is transferred to Reserve; Dec. 10. **Flying Officer** J. S. Hughes is transferred to Reserve, Class A; Dec. 12. **Flying Officer** C. B. Bond is transferred to Reserve, Class A; Nov. 19 (substituted for Gazette, Nov. 18).

Stores Branch

Flying Officer G. W. Sturman is placed on retired list on account of ill-health; Dec. 7.

Reserve of Air Force Officers

The following are granted commns. on probation in General Duties Branch in ranks stated (Dec. 9):—

Class A.—Flying Officers.—L. F. Ashley, R. G. Hart, M.C., C. N. James, H. C. Kelly.

Pilot Officers.—W. R. W. Kelley, M. C. Kerr, A. Smith.

Class B.—Pilot Officer W. Mellor.

Class BB.—Pilot Officer A. Gillespie.

The following **Flying Officers** are confirmed in rank:—E. Bradley, S. Hampton; Nov. 27. H. S. Robertson; Dec. 3. **Observer Officer** F. W. Brown is transferred from Class C to Class B; Oct. 18. The following are transferred from Class A to Class C:—**Flying Officers.**—H. E. Browne; Dec. 9. P. Chauncy; Dec. 9. **Pilot Officer** F. H. Pidgeon; Oct. 23.

Flying Officer L. R. Robertson relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Dec. 10. **Flying Officer** K. W. Bransby resigns his commn.; Dec. 9. The commn. of **Pilot Officer** on probation T. T. Williams is terminated on cessation of duty; Dec. 9.

Memorandum

Sec. Lieut. W. C. Hunt relinquishes his hon. commn. on enlistment in the Army; Nov. 3.

R.A.F. Depot (Non-Effective Pool) on transfer to Home Estab., 4.11.24. F. Woolley, D.F.C., to Inland Area Aircraft Depot, Henlow, 8.11.24. (Hon. Flt. Lt.) L. S. Ingle, M.C., to Aircraft Park, India, 31.10.24.

Accountant Branch

Squadron Leader T. H. Evans, to H.Q., Egypt; 6.12.24.
Flying Officers: E. W. Horncastle, to No. 1 Sqn., Iraq; 27.11.24. E. V. Humphrey, to Aircraft Depot, Iraq; 27.11.24. F. M. Hall, to No. 70 Sqn., Iraq; 27.11.24. A. C. Lobley, to No. 8 Sqn., Iraq; 6.11.24. J. Freeman-Fowler, to No. 4 Armoured Car Co., Iraq; 8.10.24.

Medical Branch

Wing Commander F. N. B. Smartt, M.B., B.A., to Basrah Combined Hospital, Iraq; 27.11.24.

Flight Lieutenants: (Hon. Sqn.-Ldr.) W. R. Kemp, B.A., to R.A.F. Depot, 3.12.24. H. B. Troup, to Basrah Group H.Q., Iraq; 15.8.24.

Flying Officers: F. W. G. Smith, M.B., B.A., R. W. White, R. L. C. Fisher, M.B., A. Dickson, M.B., and S. S. Proctor, M.B., to H.Q., Iraq; 27.11.24. T. Glynn, M.B., and A. A. Townsend, M.B., to H.Q., India; 27.11.24.

Chaplains' Branch

Rev. H. Thomas, B.A., to No. 5 Flying Training Sch., Sealand, on transfer, to Home Estab. 1.11.24. **Rev. F. G. B. Sutherland,** to H.Q., Cranwell, on appointment to a Short Service Comm., for duty as Chaplain (R.C.). 10.11.24.

Rev. D. F. Blackburn, to H.Q., Iraq; 27.11.24. **Rev. J. R. Walkey, M.A.** to H.Q., Egypt; 28.10.24.

Naval Appointments

The following has been notified by the Admiralty on December 2:—

Royal Air Force.

Group Capt. R. P. Ross, D.S.O., to Revenge, as Fleet Aviation Officer, on staff of Commander-in-Chief, Atlantic Fleet, on transfer of flag (August 15).

The following appointments were announced by the Admiralty on December 12, 1924:—

Royal Air Force

Wing Commander E. D. M. Robertson, D.F.C., to Revenge, on staff of Commander-in-Chief, as Fleet Aviation Officer; Dec. 10.

IN PARLIAMENT

R.A.F. Pilots and Observers (Emergency List)

Sir J. NALL, on December 11, asked the Secretary of State for Air how many pilots and observers, respectively, are available on the active or reserve lists and liable to be called up for duty in emergency; and what were the comparable figures in August, 1914?

Lieut.-Colonel Sir Samuel Hoare: There are on the active list 1,938 qualified officers and airmen pilots, 274 officers and airmen under instruction as pilots, and 45 officers qualified as observers. In the Reserve there are 548 officers qualified as pilots and 59 qualified as observers. Comparable figures for 1914 are not available without an amount of research which would, I think, not be justified.

Dependants' Allowances

Major Hore-Belisha asked the Secretary of State for Air, in view of the number of fatal accidents that have taken place, and are taking place, in the Royal Air Force, whether sums of money are invariably payable by way of pension or otherwise to the dependants of officers and men, respectively, when these meet their death from a cause attributable to the conditions of the Service; and, if not, in what conditions they are payable?

Sir S. HOARE: The Regulations relating to the grant of pensions and gratuities to widows and allowances to children dependent relatives of officers and airmen are laid down in Chapter 43 of the King's Regulations and Air Council Instructions for the Royal Air Force, 1924. This volume, which has been laid before the House and is also on sale, shows the conditions governing eligibility for the various grants. A brief summary of the provisions is bound, by itself, to be misleading, but, subject to the hon. and gallant Member's supplementing my answer by referring to the volume in question, I may say that pension and gratuity are issuable to the widows and allowances to the children (subject to age limits) of officers and airmen whose death is directly attributable to the conditions of service, and, if no widow or child is left, allowances are admissible for other dependants (that is, parents or brothers and sisters) where they were largely de-

pendent on the deceased, and their pecuniary and other circumstances appear to the Air Council to justify the grant.

Major Hore-Belisha asked the Secretary of State for Air whether, when an airman dies in the Service from a cause attributable to the conditions of the Service without leaving a widow or child, the Air Council have no power to grant an allowance to his dependants unless the pecuniary or other circumstances of these justify the grant; if so, whether he will state the basis upon which these pecuniary or other circumstances are gauged; and whether he will take steps to see that power is given to pay an allowance to such dependants in the future wherever these suffer financially from the loss of one who has met his death in the Service and has been accustomed to make an allowance to such dependants?

Sir S. Hoare: In answer to the first part of the question, one of the conditions governing the eligibility of dependants other than widows and children (that is, parents, or, if there is no parent living, brothers or sisters) for allowances, is that their pecuniary and other circumstances are such as, in the opinion of the Air Council, to justify the grant. In answer to the second part, each case is considered on its merits and in the light of all the varying circumstances, and no basis or formula of universal application can be laid down. In answer to the last part, the Regulations are already designed to afford reasonable relief in the kind of dependency to which the hon. and gallant Member refers, and I do not think that any extended powers are necessary.

Major Hore-Belisha: Is the right hon. Baronet aware that there are many cases in which the dependants of privates who have been killed have been denied any pension or allowance by his Department, on the ground that they were thought to be sufficiently well off; and will he undertake to regard their cases more sympathetically, in view of the fact that they had hitherto been supported by the deceased?

Sir S. Hoare: I should be surprised to find that that is so, but if the hon. and gallant Member can give me any cases I shall be glad to have them looked into.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

More about the ZR.3

THE first market quotation for letters carried by the dirigible ZR.3 on her trans-Atlantic voyage is 35s. The total amount of mail carried is said to have been 300 lbs., equal to about 6,000 pieces, so that there ought to be enough to go round. In addition to the cachets and postmarks applied at Friedrichshaven, the U.S. Post Office Department very considerably backstamped all letters, etc., actually received by the ZR.3, with the New York postmark of October 15, 1924. This effectively disposes of any attempt to foist upon air post collectors the very considerable number of letters left behind to be forwarded by ordinary post.

The Aero News Letter

AN interesting series of articles on the history and development of the United States arial postal service is commenced in the first annual number of the "Aero News Letter," a mimeographed publication, which serves as official organ of the Aero Philatelic Society of America. The history is being compiled and written by three of America's foremost aerosemists, viz.: H. A. Truby, J. A. Steinmetz and G. W. Angers. The first instalment carries us down to the Savannah (Georgia) flight of November 15, 1911, when a mail bag was conveyed a distance of about one mile from Athletic Park to Walters Road by the aviator Havens. The commemorative postmark is now valued at about 45s.

An English Air Post Catalogue

THE need for a comprehensive catalogue and guide for air post collectors in the English language has long been apparent, and it will be glad tidings for many that such a work is in an advanced stage of preparation. It will be published by Mr. Alan Turton early in the New Year, and will, it is hoped, prove a veritable guide, philosopher and friend to followers of the latest collecting cult.

The World's Speed Record

AT Istres aerodrome on December 11, Adj. Bonnet beat the world's speed record in an officially observed flight over a 3-km. course, when he averaged 448.170 m.p.h. (278.5 m.p.h.). He was flying a Bernard-Ferbois monoplane fitted with a 450 h.p. Hispano-Suiza engine. Lamblin radiators were fitted, and also a "Levasseur-Reed" metal airscrew. It may be noted that the French rights for this type of airscrew (Curtiss-Reed) have been secured by P. Levasseur, of Paris, and the British rights by the Fairey Aviation Co., of Hayes.

On On and Ou

Il paraît que dans l'annonce de la "De Havilland Aircraft Co., Ltd.," à la page xiv de notre numéro du 11 Décembre 1924, il s'est produit un certain différend entre l'avis du compositeur qui a composé le texte de cette annonce, et celui des personnes qui l'avaient rédigée, et, fort malheureusement, les erreurs n'ont été découvertes que lorsqu'il fut trop tard. Ainsi, la rubrique figurant au-dessous du type D.H.42, comportait la phrase suivante: "Siddeley 'Jaguar' on Bristol 'Jupiter.'" Bien entendu, on aurait dû mettre *ou* au lieu de *on*. Une erreur analogue s'est produite à propos de la rubrique figurant au-dessous du croquis du D.H.51, qui aurait dû se lire ainsi: "80 C.V. Renault *ou* 90 C.V. R.A.F." Dans le cas du D.H.50, il semblerait que le compositeur ait voulu renforcer l'Entente Cordiale en mélangeant le français avec l'anglais, car cette rubrique se lit: "Limousine (four passagers)." Or, dans les ateliers d'imprimerie de l'Angleterre, on a une profonde aversion qu'ait à l'emploi de chiffres pour figurer de petits nombre, de sorte que l'on a écrit le mot "*four*," au lieu du chiffre 4, qui figurait à l'original, créant ainsi l'impression que les malheureux passagers du D.H.50 devaient ainsi se trouver dans une pénible situation, ce qui, bien entendu, n'est nullement le cas.

For the benefit of English readers it may be pointed out that the word *four* in French means oven or bakehouse, and although the D.H.50 is admitted to be "hot stuff," the slangy expression might be misinterpreted.

Rolls-Royce, Ltd. Annual Report

THE Directors of Rolls-Royce, Ltd., will shortly issue their annual report. It will show that (subject to audit) the profits for the year ended October 31st last amounted to £163,000. They have decided to recommend at the Annual Meeting of shareholders, which is to be held at Derby on Monday, January 12th, 1925, that a dividend of 8 per cent. should be paid in respect of the year named.

SIDE-WIND

THE 21st Anniversary of the first power-driven aeroplane flight made by the Wrights, on December 17, 1903, has resulted in one or two "reviews" and reminiscences of early aviation history appearing in the "Press." In connection with these early days of flying, it is interesting to recall that even then "Wakefield Castrol" lubricating oil was to the fore—all the prize-winners, for instance, in the various flying meetings of 1909 (Doncaster, Bournemouth, etc.) used "Castrol."

IMPORTS AND EXPORTS, 1923-1924.

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25, 1912; for 1912 and 1913, see "FLIGHT" for January 17, 1914; for 1914, see "FLIGHT" for January 15, 1915; for 1915, see "FLIGHT" for January 13, 1916; for 1916, see "FLIGHT" for January 11, 1917; for 1917, see "FLIGHT" for January 24, 1918; for 1918, see "FLIGHT" for January 16, 1919; for 1919, see "FLIGHT" for January 22, 1920; for 1920, see "FLIGHT" for January 13, 1921; for 1921, see "FLIGHT" for January 19, 1922; for 1922 see "FLIGHT" for January 18, 1923; and for 1923, see "FLIGHT" for January 17, 1924.

	Imports.		Exports.		Re-Exports.*	
	1923.	1924.	1923.	1924.	1923.	1924.
Jan. ..	466	2,213	60,079	52,239	280	2,219
Feb. ..	641	920	120,236	26,349	3,040	335
Mar. ..	589	11,381	71,945	34,113	689	509
Apr. ..	8,508	373	167,757	56,998	462	6,014
May ..	845	3,426	55,427	125,138	728	4,162
June ..	1,433	1,219	141,381	87,629	1,410	2,115
July ..	192	1,510	62,025	179,292	1,334	2,708
Aug. ..	2,054	687	57,704	247,982	344	950
Sept. ..	578	4,383	39,069	67,749	106	641
Oct. ..	705	2,715	80,002	143,512	8,274	3,743
Nov. ..	1,246	2,349	55,001	100,505	250	1,007
	17,257	31,176	910,621	1,121,506	16,917	24,403

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1923

Published December 18, 1924

- 21,167. T. O. PERRY. Helicopter aircraft. (202,659.)
 21,476. SOC. D'EMBOUTISSAGE ET DE CONSTRUCTIONS MECANQUES. Joint or connecting-device for aircraft framework. (207,500.)
 22,451. BOULTON AND PAUL, LTD., J. D. NORTH and V. J. JOHNSTON. Struts, etc. (224,988.)
 24,064. H. BOLAS and G. G. PARNALL. Engine mounting. (225,007.)

APPLIED FOR IN 1924

Published December 18, 1924

- 15,129. DAIMLER-MOTOREN-GES. Aeroplanes. (219,661.)

FLIGHT

The Aircraft Engineer and Airships

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
 Telegraphic address: Truditur, Westcent, London.
 Telephone: Gerrard 1828.

SUBSCRIPTION RATES

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12 " " "	30	4	12	12 " " "	33	0	

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